Soybean Digest

OFFICIAL PUBLICATION · AMERICAN SOYBEAN ASSOCIATION

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6.

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THE Soybean Digest

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HUDSON, IOWA

Vol. 13 • September, 1953 • No. 11

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THE SOYBEAN DIGEST

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OFFICES

Business, publication and circulation, Hudson, Iowa.

Advertising, Ewing Hutchison Co., 35 E. Wacker Drive, Chicago 1, Ill.

Published on the 10th of each month at Hudson, Iowa, by the American Soybean Association. Entered as second class matter November 20, 1940, at the post office at Hudson, Iowa, under the Act of March 3, 1879.

Forms close on 25th of month preceding.

Subscription rates—to association members, $2.50 per year; to non-members, $3.00 per year; Canada and other members of the Pan-American Union, $3.50; other foreign, $4.00. Single copies 30c.

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THE AMERICAN SOYBEAN ASSOCIATION

Executive offices, Hudson, Iowa.

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Objectives of the American Soybean Association include the bringing together of all persons interested in the production, distribution and utilization of soybeans; the collection and dissemination of the best available information relating to both the practical and scientific phases of the problems of increased yields coupled with lessened costs; the safeguarding of production against diseases and insect pests; the promotion of the development of new varieties; the encouragement of the interest of federal and state governments and experiment stations; and the rendering of all possible services to the industry.

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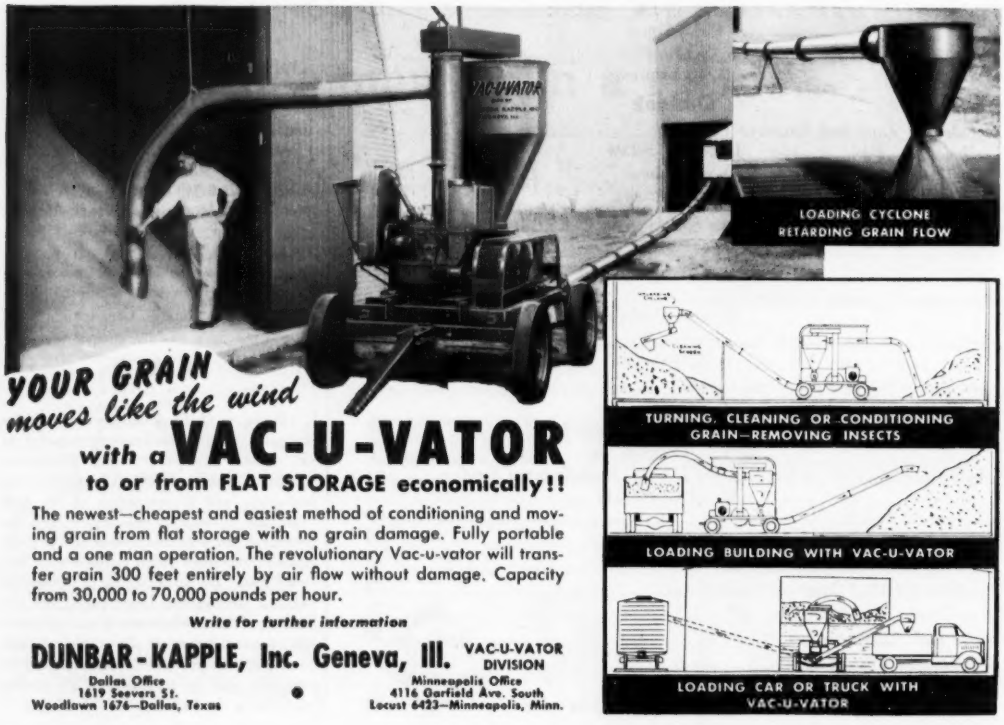
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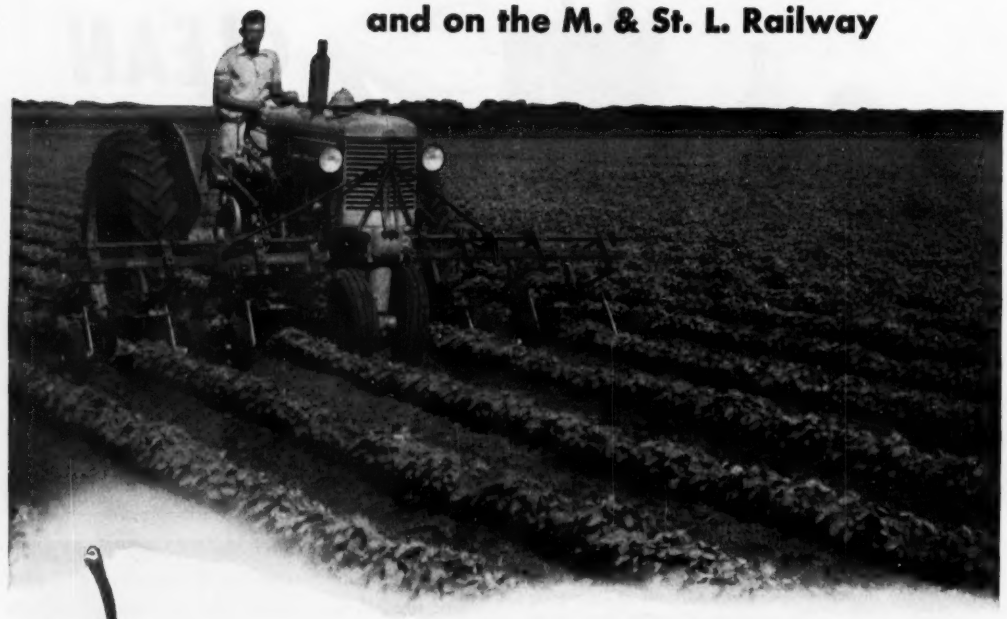

Year after year, Soybean, the Miracle Crop, looms larger in the Midwest picture of Agricultural Prosperity and Industrial Progress. Especially in the four Great Midwest States served by

The Minneapolis & St. Louis Railway

In each of the last three years, the Soybean harvest of the United States has neared the Three Hundred Million Bushel mark. In 1952, it was 291,692,000 bushels, harvested on 14,075,000 acres. An additional 2,061,000 acres were grown for Soybean hay, pasturage and green fertilizer.

The 1952 Soybean crop was worth more than $700,000,000 to farmers, at country shipping points and market prices of January, 1953. More than half of it was harvested in Illinois, Iowa, Minnesota and South Dakota, where the M. & St. L. networks some of the richest Soybean areas. The M. & St. L. directly serves several large Soybean processing plants and for a score of years has worked hard to promote the growing of this Modern Miracle Crop.

For Producers and Processors of Soybeans, the M. & St. L. provides, as it has since 1871 in the many other fields of Midwest Agriculture and Industry,

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AMERICAN SOYBEAN ASSOCIATION

Late News

Hudson, Iowa, Sept. 10, 1953

Published 32 times yearly as a service to the soybean industry.

DROUGHT HURT CROP

The condition of the soybean crop suffered and yield prospects dropped in August due to hot dry weather over the whole bean belt —except for extreme northern and southern edges. Weather Bureau map showed **almost the whole belt had 25 percent or less of normal precipitation in the three-week period ending Aug. 31.**

Our reporters indicate yield prospects deteriorated everywhere except in Minnesota, Louisiana, Mississippi and spots in Arkansas and Ohio. **Sections suffering most from the August dry spell appeared to be Kansas,** where some farmers were cutting soybeans for hay though a Sept. 2 rain helped; **western Tennessee,** the "driest ever"; **Missouri,** where J. Ross Fleetwood, extension specialist, sees yield prospects cut two to three bushels in August; and **southern Illinois** where a third of that state's crop is produced. Reports place the yield in this area at six to twelve bushels.

Other spots where there is talk of a **10 to 15 percent cut in yield are southern Iowa and northwestern and southwestern Indiana.** Everywhere in the bean belt maturity of the crop was hurried along by the hot, dry August weather. This means smaller beans and lower yields. **But rains relieved the condition over much of the Midwest the first week in September.** In the past beans have taken a lot of abuse and made a comeback. (For more complete earlier report see page 69.)

CROP MOVEMENT

The first car of new crop beans was reported in southern Illinois Aug. 27. First truck load arrived in Decatur, Ill., Aug. 31. Scattered early fields are being harvested in southern Illinois and gradually pushing northward. Crop was moving in sandy area of northwest Indiana by Aug. 31. First Wabash were expected to be harvested in Mississippi County, Ark., by late August. Real general crop movement should begin by about Sept. 15.

GREEN BEANS

Some beans with a green color—due to too rapid ripening by drought—are coming to market in southern Illinois and also in northeast Missouri. Most fields south of Decatur, Ill., show some green beans, and they are common in fields south of Highway 16, according to Albert Dimond. To what extent these will be discounted is yet to be determined. **The problem is to distinguish between beans with a green tinge and green beans.** Soybeans with a green tinge often turn yellow after being binned. **Green beans are classified as damaged and are subject to discounts of up to 2½ cents a bushel when 3 to 8 percent are green.** If there is over 8 percent green damage the load is not eligible for government loan.

We will report on this as more information becomes available. See next Late News.

COMMODITY SOYBEANS

Commodity Credit Corp. has offered 3,410,000 bushels of soybeans for processing at market price basis on-track for No. 2. The beans are available through PMA offices in Minneapolis, Kansas City and Chicago. The same beans are also available for export. A total of 597,919 bushels of CCC-held beans have been disposed of to date, CCC reports.

CCC has also announced the selling price of cottonseed oil it holds is 14 cents or the market, whichever is higher. **CCC has given assurance that the cottonseed oil price will not be reduced before next June 30.**

SUPPORT PROGRAM

Complete details on the government's price support program for soybeans are available in 1953 CCC Grain Price Support Bulletin 1, Supplement 1. Premiums for low moisture content are recognized, up to 6 cents per bushel for moisture of 11.2 percent or less. The bulletin lists support prices for all counties.

For details concerning the government's storage program see page 85 this issue.

EXPORTS

German oil mills report dissatisfaction with recent purchases of 54,000 tons U. S. soybeans with $2,500,000 of Mutual Security Agency funds. Only 15 percent went to the oil mills—the rest to import firms, many never before handling soybeans.

Most sellers in this country were also newcomers to soybean trading. **Because of price rise immediately following awarding of contracts there is considerable speculation on whether sellers will be able to deliver.**

At least one London firm is selling U. S. soybeans to European buyers on Incorporated Oilseed Association contracts and another firm indicates it will do so, J. C. A. Faure, Unilever, Ltd., London, reports. There is strong sentiment abroad for this type of contract as buyers feel it should result in purchase of better quality U. S. soybeans, and **U. S. firms in the export business may be forced to follow suit.**

	Cash price to farmers for No. 2 soybean Sept. 2		Price for new crop soybeans Sept. 2	Retail cash price bagged soybean oil meal Sept. 2
Ark.	$2.25			
Ill.	2.40 @ $2.55		$2.33 @ $2.35	$77
Ind.	2.40 @ 2.55		2.25 @ 2.34	81 @ $100
Iowa	2.45			
Kans.	2.36		2.00 @ 2.10	82.50
Minn.	2.33		2.27	85
				Miss. 78
Mo.	2.42			Mo. 83
N. C.	2.00 @ 2.30		2.30	
Ohio	2.40 @ 2.42		2.14 @ 2.18	85
Tenn.	2.25			
Ontario	2.45		2.15	

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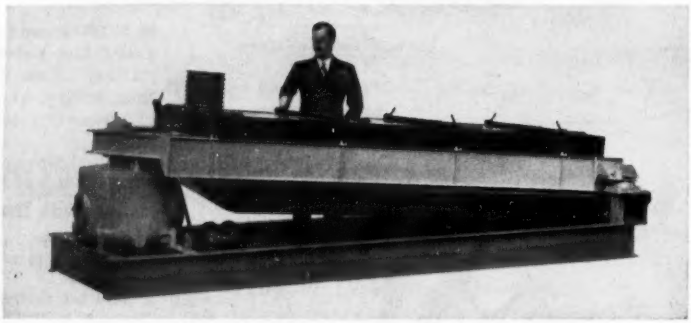
ROTEX*
SCREENERS



ROTEX Screener No. 82

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At the present time ROTEX are being widely used for the rough cleaning of whole soybeans, for further cleaning them through a coarse screen and over a fine screen, for the sizing of soybean meal, both before and after grinding and for the removal of fine dust from finished meal.

ROTEX handles all these jobs exceptionally well because of the combination of the nearly level gyratory action of the screen box and the action of the rubber ball mesh cleaning system.

While the screen box action stratifies the material and conveys it over the screen surface at an angle of inclination of only 4 degrees, the rubber balls, bouncing continuously and uniformly against the underside of the screen mesh, keep the entire area of the screen mesh open and free from clogging, thus assuring a complete separation and a maximum capacity per square foot of screen area.

There are over twenty-two standard ROTEX Models, in various sizes, with from one to five screen surfaces so that it is always possible to obtain the proper size ROTEX for any capacity and separation requirement. Special Models, with variations to fit the customer's installation requirements, can also be furnished thus often eliminating expensive spouting or conveyors.

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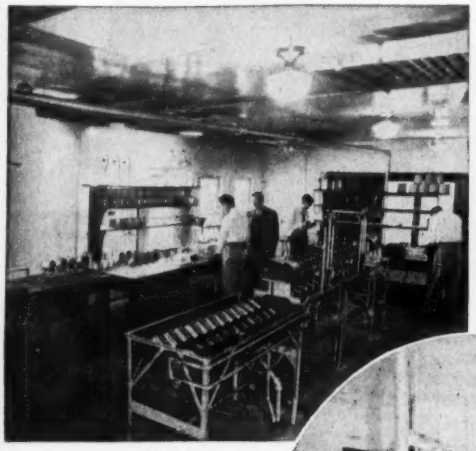
Now even tractors "eat" crops from farms like yours after they are transformed into different products by creative processors like Cargill. With new uses like these for your crops, no wonder Creative Processing eats up ¾ of all farm products.
He's cultivating parts of a tractor
These soybeans may end up in your tractor thanks to Creative Processing that uses up ¾ of farm products.
Tractors help produce soybeans. Soybeans help produce tractors. Almost unbelievable, isn't it, that things you grow help make the implements you use to grow them.
Note around the tractor picture above just four of the important uses made of soybeans and other products grown on farms in this area, and at least partly processed in Cargill plants.
Every day Cargill Creative Processing is helping to stimulate the market for dozens of farm products. Prices go along with supply and demand. Cargill is glad its Creative Processing broadens the markets for the products you grow.
Through its feed and seed divisions, Cargill also processes many products for more profitable farm use.
Your market for soybeans is better because this pie—and millions like it every day—is baked with shortening containing soybean oil. Soybean farmers need creative processors to take beans from the fields and end up with cans of shortening on grocers' shelves—and Cargill soybean oil plants are part of this creative processing chain.
Because Cargill pioneered the use of antibiotics and Vitamin B-12 in its Nutrena Pig and Hog Feeds, many farmers report they can now raise hogs faster than ever before. Nutrena Feeds are another important phase of Cargill's Creative Processing. In Nutrena feed mills up to 31 different farm-grown ingredients are processed into more than a hundred feeds for livestock and poultry. This helps make a bigger demand for the grain you grow and, at the same time, gives you better feeds than you could mix yourself.
How farm markets have grown can be traced on this chart which shows the increase in America's non-farm population. As more people move to cities and towns, the greater is the market for farm products. That's a big reason why figures now show about 75% of all farm products are "eaten up" somewhere else than on the farm where they were grown. Creative processors like Cargill play an important part in helping supply this growing market. Cargill's 26 factories and processing plants are all close to the growing areas of the farm products needed. This makes more markets available for the farmers of these areas. In addition, Cargill's grain marketing division sells grain to other processors all over the world, and thus helps get better prices for your farm products.
CARGILL, Creative Processors of Farm Products
Processing and Grain Marketing Offices in Minneapolis and 35 other cities
Cargill
CREATIVE PROCESSING

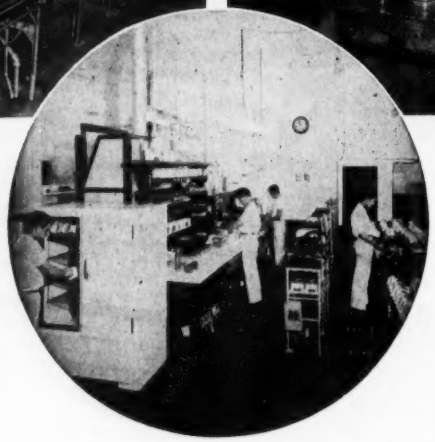
This is how Cargill is telling the importance of processing and processors to farmer-readers of papers like The Farmer, Wallaces' Farmer, Dakota Farmer, etc.

Serving The Soybean Industry



The Chicago, Ill., laboratory is equipped with the most modern equipment for refining soybean oils.

The Des Moines, Iowa, laboratory with all the latest equipment for refining oils.



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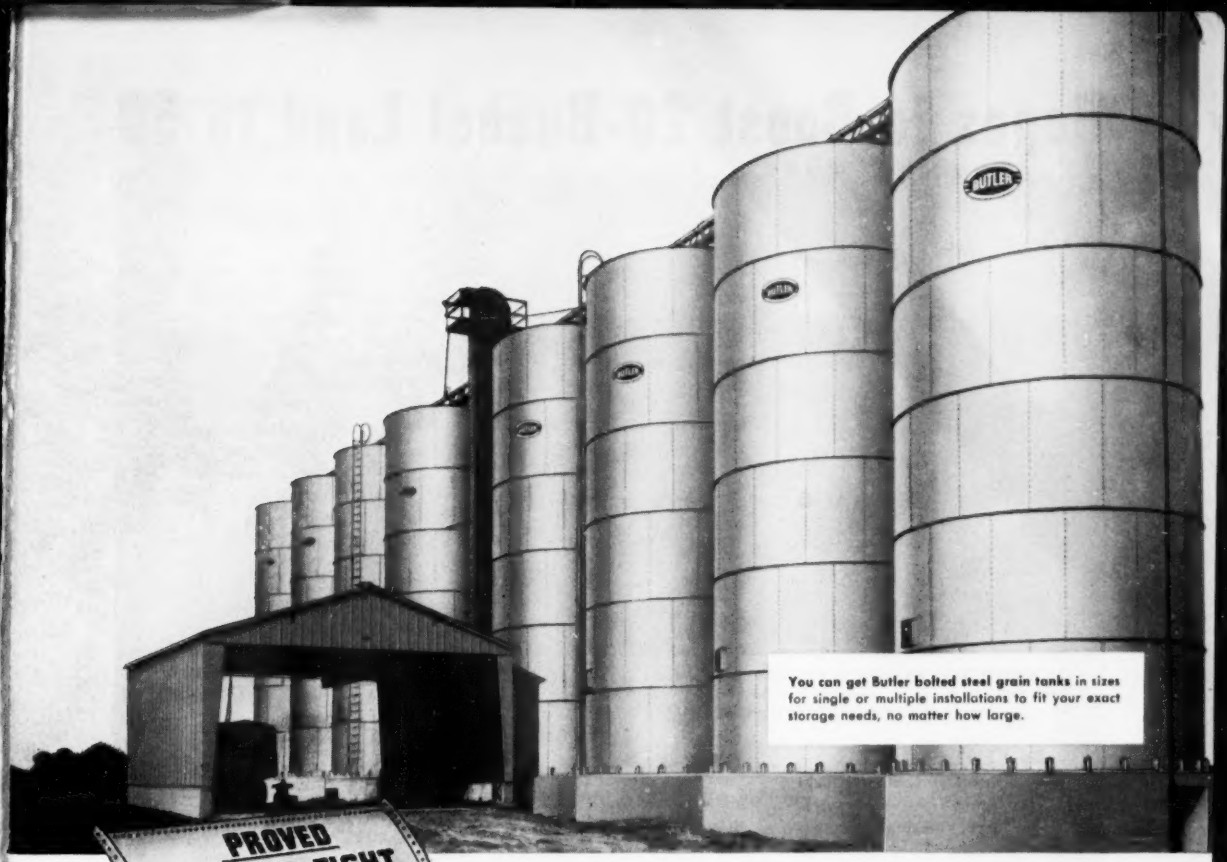
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Hopes to Boost 20-Bushel Land to 50

GRAVITY RESERVOIRS were built on Poirot Farms near Golden City, Mo., so farms would no longer be at the mercy of the weather. Poirot uses the reservoirs to irrigate his cornfields, may later try them on soybeans.

By KENT PELLETT

EAST AND north of Carthage, Mo., as far north as Nevada, lies mostly very level farming land that extends east to the Ozark mountains and west into Kansas.

This has been a difficult land to farm. Much of it is Gerald silt loam with a tight clay subsoil lying close to the surface. Surface soil is only six inches deep. The clay is very low in organic matter and low in fertility. This hard pan soil is very hard to work.

The farmers here, however, have made amazing progress in the last 10 years through a fertilizer program. Back in the 30's when AAA first came in, farmers were trying to grow wheat, corn and oats, the same as in Iowa and Illinois. Corn was producing 25 bushels to the acre and wheat about 12. Now 100-bushel corn is not unusual. The Poirots southeast of Golden City have been growing 115 bushels or more.

Soybeans have come in strong in this area during and since the war. Almost every farmer now grows soybeans as well as corn and wheat. Soybeans normally return about 20 bushels an acre, but the yield was cut by drought last year.

The Poirots, S. A. and E. M. and his son Severn E., have been pioneers in many respects in this section. They farm 1,800 acres of land with about 400 Hereford cattle. They grow about 150 acres each of soybeans, corn, wheat and alsike clover. They say the corn yield was cut two-thirds by last summer's drought, but the yield of beans was not cut much.

E. M. Poirot graduated from the University of Illinois. He rice-farmed for a while near Stuttgart, Ark., then came to the family farm near Golden City about 30 years ago. He has been there since, and has been growing soybeans for almost the whole time. He was the first to grow soybeans in that part of Missouri, the first to grow lespedeza, and the first to grow 100 bushels of corn to the acre.

The Poirots in addition to the crops mentioned above also raise minnows. They have a number of minnow ponds on the place—these are also used for water reservoirs. They supply minnows to dealers who sell them to tourists.

The 1952 drought led to E. M. Poirot's latest venture. This is two huge reservoirs built of earth that he constructed last summer and fall. He will use them for irrigating his crops by gravity.

The reservoirs will drain 160 acres of land when it rains. Three inches of runoff will fill the reservoirs, which will then irrigate 65 acres of corn land with the equivalent of a six-inch rain. A valve will let the water out of the reservoirs into canals in the cornfield. No pumps are used. Poirot will depend entirely on gravity to drain the pasture land above and irrigate the fields below.

Poirot built the reservoir so he will no longer be at the mercy of the weather when it comes to making a corn crop. He may try irrigating soybeans at a little later date.

Poirot has seen a tremendous boost in corn yields through the fertilizer program. So far he has not increased soybean yields much but intends to keep trying. He sees no reason why the area should not grow 50-bushel beans.

Poirot began with the Virginia hay bean. He grew the Boone variety long before it was named. He was one of those who was instrumental in calling its virtues to the attention of the public. Now S-100 is his main variety. It is the leader in that part of Missouri.

Poirot agrees with Dr. William Albrecht of the University of Missouri that there is a close relationship between soil fertility and human health. At one time he had considerable trouble with diseases such as scours, pink eye and lumpy jaw in his cattle herd. These have almost disappeared since he has built up the fertility of the land. Magnesium was one element that was particularly short in the soil on Poirot Farms.

A large share of the Poirot land has never been plowed. It is still in its natural state and grows luxuriant blue stem grass on which the cattle are pastured all winter.

The Poirots do not feed their cattle grain but do feed protein supplement. They grow their soybeans for what they call a hedge against the price of the soybean oil meal they feed their livestock. If the price of beans goes up, so does the price of meal, and vice versa. If they can't buy the meal they can grind the whole beans and feed them.

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33rd Annual Convention

JAKE HARTZ, JR., Jacob Hartz Seed Co., Inc., Stuttgart, Ark., was elected president of the American Soybean Association at the 33rd annual convention at St. Louis Aug. 20. He succeeds Chester B. Biddle, Biddle Farms, Remington, Ind.

Hartz, who moves up from vice president, has long been active in the Association, as also has been his father, Jacob Hartz, Sr. The Hartz firm has helped to pioneer the soybean crop in the South.

Albert Dimond, Lovington, Ill., was elected vice president.

Reelected secretary-treasurer was Geo. M. Strayer, Strayer Seed Farms, Hudson, Iowa.

A new director is Gilles De Putter, Appin, Ontario, Canada. He succeeds R. H. Peck, River Canard, Ontario, who retires after a number of years service on the board of directors.

Reelected directors to two-year terms were: Ersel Walley, Walley Agricultural Service, Fort Wayne, Ind.; Biddle; Howard Roach, J. Roach Sons, Inc., Plainfield, Iowa; John Evans, Easthome Farm, Montevideo, Minn.; Hartz; C. G. Simcox, Assumption Cooperative Grain Co., Assumption, Ill.; and Dimond.

Board members whose terms hold over are: O. H. Acom, O. H. Acom Farms, Wardell, Mo.; H. H. Huddleston, Lamont, Miss.; LeRoy Pike, Pike Seed Co., Pontiac Ill.; Edward Tillman, O. H. Acom Farms, Caruthersville, Mo.; John Sawyer, Orleton Farms, London, Ohio; David G. Wing, Mechanicsburg, Ohio; and Strayer.

Twenty states, Canada and Japan were represented at the convention by producers, processors, seedsmen, grain handlers and their wives, and other groups interested in soybeans. Over 400 were in attendance.

Those at the annual banquet saw the presentation of the honorary life membership to Geo. M. Briggs, extension agronomist of the University of Wisconsin, and heard speaker of the evening, humorist Arthur F. Briese, fake Britisher from Hot Springs, Ark.

Entertaining singers were television stars William Harder, tenor, and Gay English, soprano. Ernie Held was master of ceremonies.

The women at the convention attended a style show and luncheon at the Stix, Baer & Fuller tea room.

Organ music was furnished throughout the convention by Tom Terry.

The committees who made the convention a success were:

Convention: Ed Tillman, Caruthersville, Mo., chairman; O. H. Acom, Wardell, Mo.; Carl Simcox, Assumption, Ill.; Albert Dimond, Lovington, Ill.; Geo. M. Strayer, Hudson, Iowa.

Awards: Jake Hartz, Jr., Stuttgart, Ark., chairman; W. J. Morse, Tuckahoe, N. Y.; J. B. Edmondson, Danville, Ind.

Resolutions: David G. Wing, Mechanicsville, Ohio, chairman; John W. Evans, Montevideo, Minn.; Henry I. Cohn, Sr., St. Louis, Mo.; Herbert Huddleston, Lamont, Miss.; and R. H. Peck, River Canard, Ontario.

Nominations: O. H. Acom, Wardell, Mo., chairman; LeRoy Pike, Pontiac, Ill.; Ersel Walley, Fort Wayne, Ind.; John Evans, Montevideo, Minn.; and W. L. Burlison, Urbana, Ill.

Annual Report of the President

WE WILL REMEMBER the past year as one of many changes. There has been a change of administration in government, scarcities have been replaced by surpluses, inflation has been checked and a truce has been signed stopping military action in Korea. These changes have

—All photos by Kent Pellett of Soybean Digest. Captions read from left to right.

STYLE SHOW. Model Marjorie Knudstadt and some of the women who attended the luncheon-style show at Stix, Baer & Fuller. Left to right, Mesdames J. E. Johnson, G. L. Jordan, Robert Stroub, Ward Calland, Jake Hartz, Jr., V. Lee McMahon, Ersel Walley, George Strayer, David Wing, Harley Kerr, Charles Barham, George Phillips, and Leonard Williams.

AWARD. Jake Hartz., Jr., (right) awards honorary life membership to Geo. M. Briggs (center). At left is David G. Wing, Mechanicsburg, Ohio, who escorted Briggs to the platform.

of the AMERICAN SOYBEAN ASSOCIATION

created many new problems for the soybean industry.

Never in its history has the American Soybean Association experienced the opportunity to serve so well and to be so much needed. In the past year your Association has made numerous worthwhile contributions for the good of the entire industry. On several occasions progressive projects have been successfully supported. In some cases changes that would have been detrimental to the industry have been prevented. The past year has definitely been one of action.

Your board of directors held a two-day meeting in Chicago on December 5 and 6. This meeting was well attended. I feel that we made progress in planning for the future. Various plans were suggested for increasing membership. After a lengthy discussion it was agreed that each director submit a list of names to the office in order that it might contact these prospective members. Several good lists have been submitted with encouraging results. Our great need is for additional lists from the membership throughout the soybean producing area. This is an activity in which each of you can participate and I assure you that your assistance will be appreciated.

It was also decided to resume publication of the news letter on an approximately 35 times per year basis at a cost of $7.50 per year for a subscription and with one issue per month to be included in the Soybean Digest for that month. The Late News is proving very popular and worthwhile for those who are interested in keeping in constant touch with developments in the soybean industry. The reception given this service has been a pleasant surprise. The demand has been beyond expectations and insures its publication as long as you want it. It will continue to give you a more constant and up-to-date source of information than you can obtain through the monthly magazine alone.

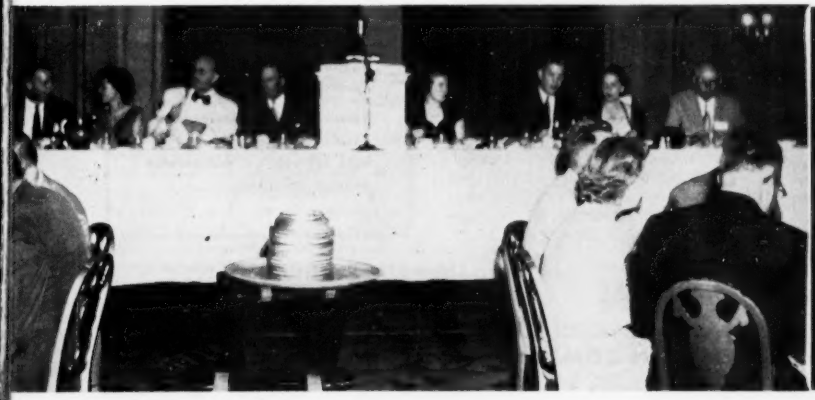
Plans for an industry wide meeting on soybean grades have been laid. Although this meeting has not been held plans are now being formulated to hold this meeting shortly after the convention. It is hoped that around the conference table we can reach common agreement on the steps that need to be taken in the revision of soybean grades, so that the grain branch of the PMA may be approached with definite proposals, which can be the subject of public hearings. Although we have not been successful in our efforts along this line in the past it is hoped that this approach may help clarify some of the needs. We know that some change is badly needed. Our domestic processors and our foreign buyers do not like our weed seeds and junk. We are also very sure that the only person that is really being penalized by the present standards is the producer of the crop.

As a direct result of our program at Lafayette last year with Mitsuo Hirano and J. C. A. Faure participating, the importers of soybeans in the buying nations are much more pleased with the quality of the product they are getting. Especially has this been true in those cases where they have called for federal appeal on grade on the cargoes as they are loaded. Although at times we have been rather discouraged with progress made on various projects we can feel encouraged by this improvement that has come about due in a large measure to our program of a year ago. Producers and handlers are beginning to recognize that soybeans are an oilseed crop and should be graded, purchased and handled as such.

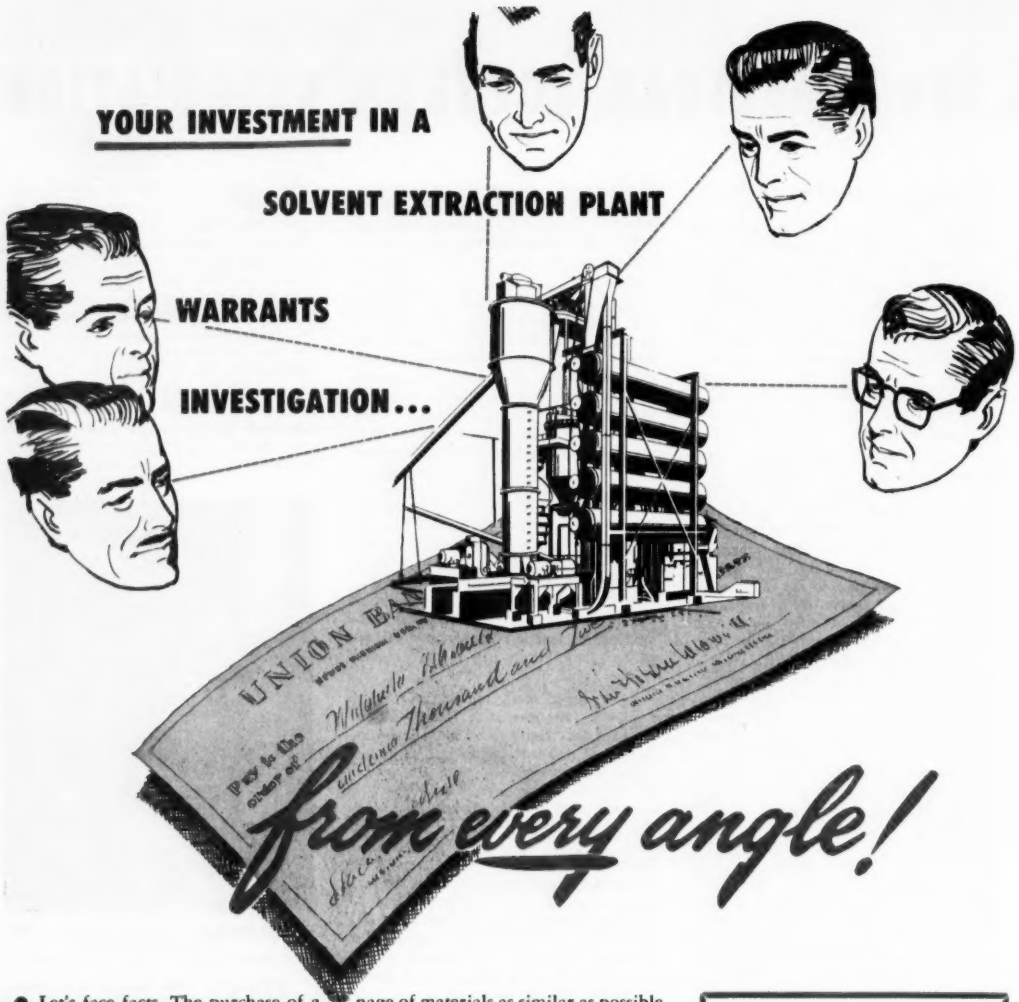
On June 19 I attended a meeting with Secretary of Agriculture Benson on the basic agricultural research problem. A number of commodity groups were represented including both grain and livestock associations. There was full agreement on the need for an increase in appropriation for basic agricultural research by all who attended the meeting including Secretary Benson. The problem was to devise a method of approach that would get an increased appropriation rather than further drastic cuts experienced in the past several years. There were some 30 minutes

TV STAR Gay English, soprano, entertains at the banquet.

STUNT. ASA member Rene Hurst, Ralston Purina Co., St. Louis, (left) and President Chester Biddle (right) do a ring stunt with master of ceremonies Ernie Held at the banquet.



SPEAKERS TABLE at the banquet. Left to right, Vice President and Mrs. Jake Hartz, Jr., humorist Art Briese; President and Mrs. Chester B. Biddle; Secretary-Treasurer and Mrs. Geo. M. Strayer; and former President John W. Evans who gave the invocation.



● Let's face facts. The purchase of a solvent extraction plant means the investment of considerable capital—capital upon which you must have a good return. The size of the investment alone warrants an intensive investigation of all types or makes of solvent extraction plants.

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of discussion and suggestions by people more or less familiar with government procedure. It was finally agreed that it seemed expedient and necessary to approach the director of the budget and have the appropriation included in the budget before it was submitted to Congress for approval. It was felt that in the past our desires were presented too late to get the desired result.

A committee was appointed to draft a letter to President Eisenhower setting out the need for an increased appropriation for basic agricultural research and requesting that he advise the director of the budget regarding such increase. This letter was to be over the signature of Secretary Benson. It was agreed that should it seem to advantage this group would meet again.

Progress has been made in margarine legislation with action being taken in Washington, Vermont, Montana, South Dakota and Iowa. The Association took a particularly active part in Iowa along with the Iowa Retail Grocers and other groups with the result that colored margarine is available in Iowa.

It was necessary to take part in the action taken by a few states in connection with Mellorine or frozen desserts containing vegetable oils. It has been our aim to assist in getting legislation in this connection that will prove to be constructive. It is highly important that we do not allow the building of barriers such as those that suppressed margarine for a long period of years.

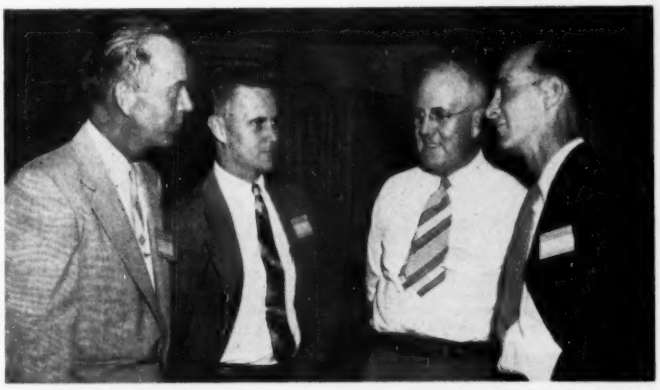
A model bill to legalize the sale of Mellorine was introduced in the Arkansas legislature. This bill was backed by the American Soybean Association and the National Cotton Council, it passed and is now a law. Similar legislation was passed in Alabama and Illinois.

The problems that are now presenting themselves for consideration are more numerous and more important than at any time in the history of the soybean. It will require all the power and ability we have at our command to solve these problems.

As surpluses increase we will need to sell our product, a phase of industry that we have more or less neglected. In the months ahead legislative action will become more important and acreage allotments in wheat, cotton and possibly corn will bring new and difficult problems. We will need to give attention to proper representation for the soybean in all these fields. This will definitely afford greater opportunity for the Association to serve, and in performing this service we must not fail. We must be alert to the needs of our membership.

In closing I want to express my appreciation for a fine office force that conduct the business of the Association. It has been a pleasant experience to get acquainted with this excellent group that is doing a fine job. In my opinion the people who constitute the membership of the American Soybean Association are second to none. I challenge anyone to even suggest a finer more sincere group of people. It is amazing that so many leaders in so many other fields have joined forces and have so freely contributed to the long time success of the American Soybean Associa-

FOURSOME. Comparing notes are ASA Director H. H. Huddleston, Lamont, Miss.; A. F. Stephens, general agricultural agent, G M & O Railroad, St. Louis, Mo.; Vice President Albert Dimond, Lovington, Ill.; and Ashleigh P. Boles, director of agriculture, Missouri Pacific Railway, St. Louis, Mo.



NORTH AND SOUTH. Deep in discussion are Coleman Crews, Keiser, Ark.; ASA Directors John Sawyer, Orleton Farms, London, Ohio, and David G. Wing, Mechanicsburg, Ohio; and K. A. Standing, executive secretary of the Ontario Soybean Marketing Board, Chatham, Ontario.

AT BANQUET. Otto B. Langfelder, assistant manager Illinois Soy Products Co., Springfield, Ill.; speaker Paul Quintus, Production and Marketing Administration, Washington, D. C.; E. E. Yeck, advertising representative of the Soybean Digest, Chicago, Ill.; and Mrs. Delmar C. Cobie, wife of the circulation manager of the Soybean Digest.

ASA DIRECTOR Gilles De Putter, Appin, Ontario, Canada. He and his brother Kase grow 100 acres of soybeans annually in an area of rapid expansion.

AT BANQUET. Dixon Jordan, Standard Commission Co., Memphis, Tenn., and Paul C. Hughes, Farmers Soybean Corp., Blytheville, Ark.

GROWERS. Enjoying a joke at the banquet are producers E. W. Trachsel, Helena, Mo., and Arthur M. Andersen, 84-year-old veteran soybeanman of Elwood, Ill.

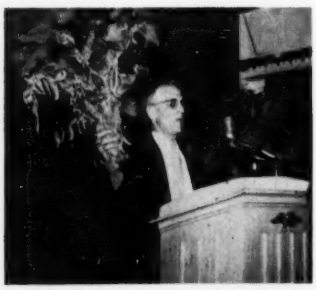
TWOSOME. Hugh Seelbinger, St. Charles, Mo., producer, and ASA Vice President Albert Dimond, Lovington, Ill.

tion. We often refer to the soybean as the miracle crop. May I suggest that there is a miraculous group of people helping to make it a miracle crop. Your help during the time I have served as your president is deeply appreciated and I am very grateful to each and everyone of you for your loyal support and active participation in the affairs of the American Soybean Association. — *Chester B. Biddle, president, American Soybean Association, Hudson, Iowa.*

Report of the Secretary-Treasurer

TIMES HAVE really changed since my last report to you one year ago. At that time we were talking about ceiling prices on soybean oil meal, about soybean oil meal mixes and the fact that OPS had just recently issued an order stopping the sale of such mixes after Nov. 30. It does seem much longer ago than that—doesn't it? Less than a year ago we were wondering if the new ceilings were going to be realistic and give full recognition to the advances in nutritional knowledge of soybean oil meal. And for several months now we have been worrying—not about ceiling prices but about the relatively low prices of soybean oil meal.

The 1952-53 fiscal year of the American Soybean Association has been an interesting one, for it has brought some of the changes which had been anticipated several years ago, but which did not appear when expected. The postwar adjustments which were delayed and then again postponed by the Korean policing action have put in their appearance. Plentiful supplies of cottonseed and increasing crops of flax have, coupled with large pig crops, made fats and oils supplies plentiful. Price has been the determining factor in usage. During recent months soybean oil has been low enough in price to be very attractive—and supplies have disappeared at a rather rapid rate. While they were doing so the supplies of cottonseed have been accumulated by governmental agencies, and we now have staring us in the face the large CCC holdings of cottonseed oil. During the last fiscal year our problem has changed from one of ceilings to one of supports—from inadequate supplies to one of entirely adequate supplies.



COMPARING fertilized with unfertilized plants is speaker A. F. Stephens. Plant on left received lime, phosphorus and potash, had 68 pods. Plant at right received lime alone, bore 13 pods. Plants were from University of Missouri test plots.

During the 1952 calendar year we made considerable progress in the consumption of soybean oil in margarine. Price—and availability were the deciding factors. For the first time in history more than 25 percent of all the soybean oil produced in the United States—more than one carload out of every four—went into the production of margarine. More than half of the oil used in margarine during that calendar year was soybean oil. Table spreads now comprise a very important market to us, and one which apparently offers further possibilities of expansion. While vegetable shortenings still use more soybean oil than any other one product, margarine has risen to the point where it is now running a close second.

During the year the state legislatures have made considerable progress in removing state barriers to margarine sales. During the past winter and spring your Association carried the ball on a legislative program in Iowa, where we were successful in removing both the ban on the sale of yellow margarine and the 5-cents-per-pound tax which had been collected. Three other states, South Dakota, Montana and Vermont, also removed bans which they had in effect on the sale of yellow margarine. That leaves only two states—Minnesota and Wisconsin—still holding out and not allowing their residents to make their own decisions on the foods they will eat. I believe this makes a total of 14 states which have changed their laws since the federal repeal in 1950, in which we participated.

Although the federal Congress has been in session during the past several months, there have been no major federal legislative matters in which we have been interested. With the change in administration in January the Department of Agriculture programs all underwent scrutiny, some of which is still continuing. Your secretary did meet as a member of the Soybean and Flaxseed Advisory Committee to appraise the present programs and make recommendations to the Secretary of Agriculture. Those recommendations have meant no change in policy, for the 1953 crop programs had previously been announced and were not subject to change.

The soybean industry, as we know it today, has been created largely as a result of research, and the practical application of that research. Probably no industry has come so far so fast as has ours. Realizing that what we are we owe to the progress attributable to research, your Association board of directors has taken action to do everything possible toward the appropriation of adequate funds for basic agricultural research by the U. S. Department of Agriculture, and by the states. It has been our feeling that the values of basic research, established in past years and utilized during more recent ones, have been neglected in the rush toward the so-called action programs. Your Association, along with a number of others in the field of agriculture, has been working along that line in a cooperative effort aimed at again placing research funds in their proper focus. The efforts

(Continued on page 64)

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HONORARY LIFE MEMBER
1953

GEORGE M. BRIGGS

GEORGE M. BRIGGS, extension agronomist at the University of Wisconsin, was born on a farm in Houston County, Minnesota, May 19, 1884.

From 1890 to 1899, Briggs attended a district school four miles from Houston. He was a student at the School of Agriculture at St. Paul from October 1906 to March 1909. He enrolled in the Minnesota College of Agriculture in 1912 and graduated in 1916.

Briggs was a farm owner from 1906 to 1910 and a farm manager in 1910 and 1911.

From October 1911 to September 1912 he was assistant to the agronomist at the Minnesota College of Agriculture helping in corn investigation work. From June 1916 to September 1919 he was county agent in Burnett County. He then became crop extension specialist and assistant county agent leader at the University of Wisconsin.

His interest in soybeans began when he was county agent, almost 35 years ago. He has kept up this interest to such an extent that he is familiarly known as "Soybean" Briggs to thousands of soybean growers.

When Briggs went to the University of Wisconsin, he was asked to continue his soybean work. From 1920 to 1923 he established soybean plots in 40 Wisconsin counties—just to familiarize farmers with the crop.

While extension workers ordinarily do not feel that they have any official responsibility with breeding programs, Briggs has repeatedly been on committees to select new soybeans and has had a definite part in the improvement of varieties now standard in the Badger state. His work has helped purify and develop seed lots from such varieties for Wisconsin as Mandarin 507, Manchu 606, Manchu 3, and an improved strain of Mukden.

The Wisconsin soybean specialist started a program of one acre of soybeans for each four head of dairy cattle at a time when other high protein feeds were not available.

Briggs has been Wisconsin's delegate to national soybean meetings and helped to organize the American Soybean Association. He was president of this group in 1923 and one of its directors for several years. Two meetings of the Association have been held at the University of Wisconsin, one in 1923 and the other in 1940.

He is author of a circular, "Plant Soybeans," and co-author of a bulletin, "Soybeans, a Crop Borrowed from the Orient," and of other circulars.

Mr. Briggs was chosen an honorary life member of the American Soybean Association at its 33rd annual convention at St. Louis. This brings the total number of life members to 18. The award was presented at the annual banquet.

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BROKERS TO THE SOYBEAN PROCESSOR

New York San Francisco

Practical Production and Harvesting in The Midwest

By ALBERT B. DIMOND
Lovington, Ill.

SOYBEANS are firmly entrenched in the agricultural economy of the great Midwestern Cornbelt and surrounding areas. In the space of a few years the crop has arrived and as its usefulness is explored and exploited it should continue to grow in importance.

No effort should be spared in pushing an aggressive research program and keeping up a slugging promotion of the products made from this miracle bean. Its potentialities are far from being realized. The most impractical thing a producer can do is to neglect to recognize and support such a program. Of course any producer here recognizes this. But do you tell it to your neighbor?

By the very nature of things producers spend most of their time wrestling with the problem of growing the crop at as low per unit cost as they can and selling it at a price somewhat above this figure. Normally this works out, but the fact that it doesn't sometimes is the reason that a farmer must be an optimist.

This farming business is so full of variables that it is impossible to lay down any hard and fast rules about it. The one sure thing is that the next situation, season, condition, or combination of factors will be different.

Better, Cheaper

As with any industry, soybean production needs to be constantly alert to methods of doing it better and doing it cheaper. No farmer can run an experimental farm and make a living at the same time. I have the word of a retired professor of soil fertility at one of our state universities for that. Fortunately in this country we have experimental stations set up in connection with the land-grant colleges to do the bulk of this work for us. Specialists from these stations have done an excellent job. They have the answer to most any problem and what they don't have they are after.

Now it would appear that all that would be necessary in order to do the job is to take their advice and cash in. For most farmers though the objective is not the highest yield per acre nor the neatest field completely weed-free but the amount they can have left for living after the crops, livestock, and produce are sold.

The most successful bean growers I know, and we have a lot of them in the Midwest, invariably have developed the knack of ferreting out what best fits their own particular situation. For instance 80 percent of the beans grown in central Illinois are in wider rows than has been proven many times to give maximum yields. Why? Chances are those rows end up with the best results when all things are considered.

Fertility Level

Probably the most neglected thing in the production of soybeans in the Midwest is the soil fertility level. Unfortunately in the beginning of soybean production in this country they picked up a reputation as a worn out land crop; something that would produce where not many other crops could.

This is being remedied to some extent but they are still our most neglected crop in this respect. Probably this is because they have not yet been found to respond to direct fertilization to the degree that other crops do. But they certainly like a high fertility level.

The most accepted practice has been to let them forage on what the other crops leave. "Let beans feed at the second table" is a common expression. This might be okay but much of our land has been farmed for 100 years—be sure it isn't the 102nd table.

Just about every so often something happens in bean fertilization that makes me think we need more knowledge in this field. There is a farmer west of Decatur, Ill., who jumped yields 15 bushels per acre; from 35 bushels, which is a pretty fair crop by the way, to 50 bushels by plowing down muriate of potash and 100 pounds ammonium nitrate per acre. Maybe that is what we need.

We never have raised that many beans. But we are finding that liberal applications of fertilizers on other crops have a decided effect on the following bean crop. Fertilizer on soybeans might be a debatable subject in some instances but limestone never is. Keep this level where it belongs.

Crop rotation with its many advantages is pretty much a standard practice in the Midwest. Soybeans often fit well into these rotations and probably most of them are grown in connection with rotations. One—corn, soybeans, and Miami might not be so popular now with the present falling prices of corn and beans.

Any good corn soil will grow them well and in the past several years it has been discovered that they really like claypan soils such as are found in many sections of the Midwest. On soils of this type soybeans might be the best crop you can grow.

We include a large percentage of beans in our crop plans because, while they are seldom the high profit crop, they let us almost double the use of machinery and labor in the planting and harvesting seasons. Corn, which is the main crop wherever it can be grown, is not so elastic in its planting date requirements as are soybeans, and they are generally out of the way before corn harvest.

Beans also can be harvested in many sections in time to sow small grain, which in turn makes an excellent place to seed clover without which most Midwest Cornbelt farms would soon be in the junk heap.

Headache of Weeds

Weeds are the biggest single headache connected with the bean crop. Life has few things more exasperating than unplugging a choked-up combine full of green weeds. After a season of this farmers do one of two things, they swear they will never raise another crop or they vow to do better next time. Weeds also cause dockage at the elevator which is never popular.

Early plowing so that some of the weeds will get started and can be killed before the crop is planted is favored. Planting the crop in rows so it can be cultivated is almost universal. Cutting out the big ones that escape the cultivator is not popular but is done by the more careful growers.

A field with a vicious weed problem might be avoided, or a chemical used to kill weeds shortly before harvest. Professor Slife who preceded me on this program has told you the story on the all-time champ of the weed pests, giant foxtail.

The Midwest farmer is a machine addict and soybean raisers are among the most confirmed of the lot. The crop is completely mechanized. In many phases of crop production—fertility, crop varieties, dates and methods of planting, storage, etc., the sensible solution is to depend on the advice of specialists in the field. Most any grower can juggle their recommendations to fit his needs with much less trouble than trying to solve them himself in the east 40. Most growers are pretty alert in this respect. Notice how they take hold of a new variety.

Should Fit Farm

But the machine and labor problem is another matter. Some growers might raise 20 acres, others might have 20 times that many. There is just no way to standardize these things. Machines of all types and sizes are available and practically all perform satisfactorily. But do we pick them out to fit our own case? In the township where we live there is a farmer who owns and operates as good a quarter section as lies outdoors. On this farm he raises 60 to 80 acres of small grain and soybeans per year. A year ago he bought a $6,000 pusher combine to harvest these crops. Naturally the crop was harvested before the paint was burned off the exhaust on the motor and the story goes that as Jack ran her in the shed he remarked, "I know I have no business with this thing, but I sure feel important teaming this job around."

Machines are only as effective as they are adjusted to the work at hand. If there is one inflexible rule in soybean production it is KEEP THE LAND LEVEL. A job of plowing that ridges the soil follows the crop all the way through making it impossible to keep the combine platform low enough to get the lower pods on the plant at harvest. Under some conditions disking at too high a speed will do the same thing. Cultivating has a tendency to ridge soil in the rows and often this is desirable to cover weeds and grass there, but the cultivator can be adjusted to keep these uniform. It is surprising how much better job of cultivating can be done at four miles per hour than at six, and how much more rested the operator is at sundown. Alert and rested tractor drivers have less accidents and breakage as well as doing better work.

The universal tool in the production of soybeans is the combine harvester. This machine demands careful operation or much of the season's work is left in the field. If we have kept the land level and the field fairly free from weeds and grass the job is half done. We once had a field of soybeans planted in rows of such width that the combine wheels didn't fit. One ran on a row and the other in a middle, giving the machine a nice tilt. One row didn't look so good and there wasn't much we could do about it then.

Beans are a comparatively easy crop to thresh and most operators do a creditable job. Of course now and then some fellow neglects to slow down the cylinder speed or carries too heavy a return and winds up with a tank full of cracks. I know of a farmer that lost the sale of seed beans once at a 75-cents-per-bushel premium because of 22 percent cracks—2,000 bushels of them too. Or the air is shut down and sieves manipulated and the threshed beans are full of dirt and weed seeds.

Carrying soybeans over on the straw racks or over the back of the sieves is not as big a problem with beans as with some of the small grains. Green stems or weeds aggravate this. Cutter bar loss is the hardest thing to handle. If some way could be found to get them into the machine without touching them the problem would be solved. That might take some doing.

Reel speeds and adjustments can make a big difference here. Modern combines are so full of push buttons that surely another wouldn't matter so I suggest that a device to raise and lower the reel on the go is the most needed addition to the machine. While we are at it it might as well move it forward and backward too.

Cost-Price Squeeze

With continued high costs and a lower price level it is a certainty soybean producers will need to study production costs harder. I have a strong suspicion that because of the ease and speed that modern farm tractors get over the fields we sometimes run over them just for the ride—with a resulting compaction of the soil that actually reduces its productivity. During World War II there was a slogan invented for the conservation of rubber and gasoline—"Is this trip really necessary?"

Raising a crop is one thing and selling it is another. Traditionally farmers get the short end of the deal in the selling. If anyone doubts that just ask one. I do have a neighbor though who seems to do pretty well most of the time. When asked about his system he replied, "I find the best time to sell is when I need the money." Evidently he plans this time to miss the harvest rush because he bins his beans every year. We try to miss this harvest time sale, too, working on the theory that it is more important to miss the low point than it is to hit the high, something that seems to be beyond us.

Dimond is a farm owner and operator in central Illinois, the heart of the soybean belt.

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Practical Production and Harvesting in The South

By WALTER M. SCOTT, Jr.
Scott Plantations, Tallulah, La.

SOYBEANS HAVE PLAYED an important role on our farm for the past 40 years. This was long before soybeans had any commercial value as an oilseed crop. They were planted for hay and for a soil building crop. It has been most interesting to observe their development, and to see the soybean gain prominence as one of the principal cash crops.

The soybean is perhaps the most versatile crop that we grow, but it is not a miracle crop by any means. It probably is wider adapted to a larger area than most any other crop, being grown from the Gulf of Mexico to Canada, in practically every state in the eastern half of the United States.

Soybeans are a crop that work well in a crop rotation program. They are a splendid hay crop planted broadcast, comparable to alfalfa in food value. Soybeans work well as a companion crop to be interplanted with corn, either to cut for silage, or to be hogged off, or just the corn gathered.

There are some fundamental principles and practices that must be adhered to for the successful production of soybeans just as with any other crop, such as the selection of varieties suitable for your section of the country, a choice of land reasonably free of grass and weeds, and good cultural methods that any other crop demands.

Our biggest problem in raising soybeans in the South is from grass and weeds, and I do want to stress this point. Any farmer can grow soybeans. It doesn't require any special "know how," nor require any special farm implements other than a combine to harvest them. Any one raising a bale of cotton per acre can raise 30 to 35 bushels of soybeans per acre on the same land with the same tools by employing good farm practices.

Plowing the Land

Plowing the land is an important factor with any crop and soybeans are no exception. In the South there are several methods of plowing. One, and perhaps the most universally used, is plowing with middle breakers. Another is flat breaking with pan and moldboard plows. In some instances breaking is done with a plowing disk and crawler type tractor. We prefer the latter methods as all of our planting is done on a flat bed.

It is advisable to plow the land in the fall or as early in the spring as possible as this gives the land time to run together and reduce the air pockets that would tend to dry the land out later on. Also, fall plowing allows a maximum amount of humus to be returned to the soil following harvesting.

Land Preparation

Before the planting season arrives concentrate on killing out grass and weeds by disking over the land lightly with a section harrow behind the disk, at least twice before planting. It will pay dividends later in the control of grass and weeds.

Another very satisfactory method, if your ground is plowed flat, is to run a tool bar cultivator or similar tool with flat sweeps about three or four inches deep, the sweeps set so that they overlap and do a clean job. We call this pre-planting preparation.

Preparation of Seed Bed

The preparation of the seedbed is one of the most important factors. If the planting is to be on rows, work the row down almost flat, using some means to conserve the moisture. A cultipacker is hard to beat either ahead of or following the planting.

Whether planting on rows or planting flat it is essential to get the beans up to a good stand as soon as possible after planting and not have to wait for a rain. Too much stress cannot be made on this point. Conserve that moisture; it is perhaps the most important factor in growing soybeans. We do our seed bed preparation with a light disking and soil surgeon or section harrow following to conserve the moisture.

Planting Season

The planting season for soybeans extends over a long period from Apr. 15 to June 15 in our locality, but varies somewhat a few hundred miles to north or south of us. The time of planting seems to have little effect on the date of maturity or the yield in a normal season. Thirty days difference in planting will make no more than five days difference in maturity.

If you are planting several varieties of successive maturity, plant your early maturing beans first, your medium variety next and your medium late maturing variety last; that is up to the first of June. After the first of June our observation has been that the medium maturing varieties do better and give a better yield. Select varieties which have been proven and recommended for your specific territory.

And be sure that you get good seed with high germination. Much seed is sold with an analysis made in the fall at the time of harvest or shortly after, and unless these beans are treated with Arasan or similar agent, the germination at planting time in the spring could be entirely different. This is due to a fungus which attacks the beans and lessens the germination. This same fungus will attack the small seedlings killing them or badly stunting them, so be sure to get seed that have a recent germination test and come from a reliable source.

If beans are being planted on a piece of land for the first time, it is imperative to inoculate the seed. After the first year and for at least three years afterwards the bacteria will live in the soil; we have observed little or no advantage from inoculation once we have the soil inoculated. Now, whether seed can be treated and inoculated at the same time is a controversial question; some say yes, some say no, so you had better check with experiment station or county agent on this question.

Unless a small acreage is planted, we suggest planting several varieties so the maturity dates will be staggered. This has several advantages. A combine can handle almost twice the acreage with a minimum loss to shattering. The combining can be concentrated and the beans gathered at the proper time.

For the early varieties plant Dorman or Dortchsoy 67. These mature the 15th to 20th of September. We feel the S-100 maturing the first of September is too early for us. If we have any July and August rains the grass takes over and causes a moisture condition which results in the beans molding before they fully mature. Storage of such beans is almost impossible. The Dorman and Dortchsoy 67 also outyield the S-100 for us. For the mid-season varieties the Ogden or selection of Ogden,

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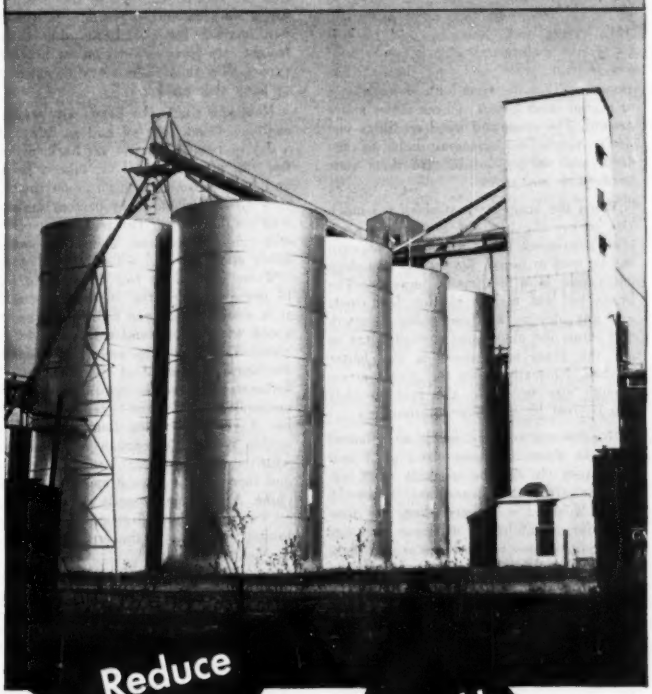

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Scott plantations recently quit growing cotton and put beef cattle in its mule barns. One thousand acres of soybeans are grown annually.

such as Dortchsoy 2, Hale Ogden, etc., have proven the best so far. These mature about the first of October and yield the best for us.

For the medium late varieties the Volstate, Roanoke, and Dortchsoy 31 are accepted varieties and mature mid-October. A new variety has been developed in this class, the Jackson, but I doubt that seed will be available for a year or two. We don't go in much for any later maturing varieties because of normally unsuitable weather after Nov. 1.

Planting and Cultivating

Most of the beans in the South are planted in rows, either drilled or hill dropped. Broadcast are not satisfactory because of lack of weed control. The yield will not differ enough on 36-inch to 42-inch rows to compensate for changing from the regular corn and cotton row widths. The drilling seed rate we advocate is 40 to 50 pounds of seed germinating around 90 percent. We feel this gives an ample stand, and if any thicker, tends to reduce stem size and increase lodging. When hill dropping, four to six beans in 10- to 12-inch hills is ample. Either way, the seed should be covered one and one-half inches in light soils and two inches in heavier land. In case of rains following the planting, the rotary hoe is one's best friend to break the crust caused by the rains and get the beans up. We use four-row, gang type hoes which are pulled behind a tractor at four to six miles per hour.

We also feel that the hoe is the only tool which cultivates the drill itself and used often enough is a wonderful control for grass and weeds. The proper time is just after weeds and grass germinate. If it is to be used on beans which were planted on set-up rows, we suggest that the gangs be made rigid by addition of angle iron bolted across the top of the frames. The gang hoes tend to sag in the middles and make the hoe wheels run at an angle. This small angle is all that is necessary to plow up the beans.

Some folks are beginning to use pre-emergence spray treatment. We feel it is not the answer, because when it is used the rotary hoe cannot be used without loss of effectiveness of premerge. CIPC premerge treatment has been used by us for two years. We feel that on land fouled by pigweeds or indigo it is an aid to weed and grass control, but we also feel that crasted ground following rains tends to stunt the beans. Here again, the rotary hoe would have prevented such a situation. Crop rotation and summer fallowing pay dividends in the fight with the weeds and grass.

Several years ago one of our local equipment dealers brought a vice president of his company out to visit with us and see some of our farming problems. This gentleman's company manufactures rotary hoes, but he had never seen one in the field. On his ride over the farm, he spied two hoes operating amidst clouds of dust and remarked that there seemed to be a good stand of beans, and he wanted to know why they were being plowed up. There followed, of course, the explanation that the beans were being cultivated and not plowed up. Later, he asked to be taken back past that same operation. This having been done, he said he still could not understand why it got rid of weeds and grass and not beans. The answer is that the bean puts down a root to anchor itself before it ever shows above ground. The grass and weed seedlings just don't match its tenacious hold to the earth and we try not to give them time to develop any roots.

When the beans have attained too much size to use the hoe any longer, the same type cultivators used in cotton and corn can be used in beans. We do feel that deep cultivation is a detriment, however. The beans put out masses of tiny feed roots and any plowing of these reduces growth and stunts the plant. Just enough depth to get the grass and weeds is the better method. Normally when the plants attain enough size to shade the middles they can be laid by until harvest time.

If grass and vines persist in the planted area the flame cultivator is a good tool to employ. It can be used to good advantage after the beans are about 16 inches high. Used every three or four days for a minimum of three flamings usually gets good results. One or two flamings is almost a waste of time. Don't expect the flame to kill weeds, vines, and grass that have reached maturity. It has to be started as early as possible without injury to the beans to be successful.

Post-emergence spraying with non-fortified oils may be coming in the future. We tried some this year but are not too well satisfied. This has an advantage over flaming in that it can be started while the beans are smaller and more acreage covered.

Harvesting

That brings us up to the harvesting period, "the one that we all look forward to." If you planted good seed of adapted varieties, and cultivated the beans reasonably clean you have nothing to worry about except to get them combined and a place to store them. Check the combine over, set it at the recommended speed and cylinder setting, be sure that it is ready to go, because any delay may prove costly. A combine properly set and operated, and with a scour cleaner, should give you a No. 1 sample of beans, or certainly an excellent grade of No. 2 beans. I know what you are thinking, I have heard that argument before, and I am sorry that I do not have an answer to it—that is, why get a No. 1 grade when I get no premium for the better grade? Maybe it will not be that way always. Perhaps we will have grade standards some day, so you will get a premium for your better grades.

But for the present let's look at it in a little broader sense. Consider the fact that we have a big industry at stake worth many millions of dollars to the soybean growers. We have lost a considerable volume of our exports due to shipping an inferior quality and grade of beans to our purchasers abroad. Now, I do not mean to say that this is solely the fault of the farmer. It is not, but the fact remains that the loss is real. We in the South enjoy a very favorable position in the export market for our beans due to the freight rate from our section on beans for export. We should do everything we can to keep this market.

Now you think the beans are ready to combine. Good, take off and go fishing for a day or two. When you get back, make a test run of a few bushels, take a sample and have a moisture test run on them. If they are in excess of 14 percent moisture wait another day or two until the moisture will run that or less. Then they can be safely stored or sold without any discount.

There are one or two things I do want to mention about the combine operation. It is essential that you coordinate the reel speed with the ground travel of the machine. This keeps the reel from threshing the beans out ahead of the combine. Unfortunately, there is not always enough mechanical adjustment to take care of this, but if you are cutting four rows and are unable to go fast enough to synchronize with the reel speed cut down to three rows and increase the ground speed of the machine. A combine properly set and operated can make the difference of five or six bushels of beans in the hopper or left in the field.

As you know the implement manufacturers are always making some "gadget" to sell to the farmer. There is one such gadget called a straw chopper, which mounts on the rear of the combine. We feel it is really worth while as it chops up the straw and trash finely and spreads it evenly over the land. This makes it many times easier to plow under and return this humus to the ground. This can make the difference between a soil building crop and a soil depleting crop. You will be well pleased with the straw chopper, and your land will be wonderfully benefited from its use.

The plowing, and planting, and cultivating, and harvesting does not conclude the job. The marketing is the next step and the one where the pay-off comes. Whenever it is possible we feel that "on-the-farm" storage is a paying proposition. It enables us to handle our harvest with 20 percent of the hauling facilities that would be necessary to haul to a public elevator or mill. We are also able to deal in a quantity that commands some respect from the buyer. We can do our selling at a time when our other labor requirements are at a minimum. We just feel that an elevator is almost a must in large scale operations and a help on any size farm. There is also the opportunity of a government loan on crops stored such as we have mentioned.

Weed and Grass Control in Soybeans

By F. W. SLIFE
Weed Control Specialist, Agronomy Department, University of Illinois

WEEDS HAVE BECOME the greatest hazards to good yields of soybeans in much of our soybean belt. Although great progress has been made in fertilization, new varieties and cultural practices, these advancements have not fully expressed themselves in many fields of soybeans because they have been offset by heavy weed growth.

Although chemical weed control in soybeans is promising, our best weed control program for soybeans is still accomplished by crop rotations, early seedbed preparation combined with delayed planting and good cultivation.

Crop rotations are important in controlling weeds in soybeans because they help prevent certain types of weeds from building up or from increasing so rapidly. Growing continuous soybeans under poor management is one of the best ways to thoroughly infest a farm with annual weeds. Soybeans themselves are not to blame for this situation but poor management of the crop plus the combine, which is one of the most efficient means that we have for scattering weed seeds in the field, will allow the annual weeds to build up a large supply of seed in our soil.

It would appear that in many of our soybean areas the type of weed problem is changing rapidly. Grass weeds, particularly the annual grasses, are spreading much more rapidly than the broadleaved type of weeds. This is particularly true in the giant foxtail areas which now cover the greater part of the soybean belt in Illinois and western Indiana.

There are probably many factors contributing to the grass weed build-up in our soils, but I think we can contribute part of it to the continued use of 2,4-D in our cornfields. By eliminating or reducing our broadleaf weed population in corn we are making conditions more favorable for the grass-type weeds and by doing so we have upset the balance of plants.

Giant Foxtail

If this trend continues we will be faced with a very serious problem because we have no good chemical means for controlling grass in most of our crops. The best control for annual grass weeds in our soybean fields is undoubtedly early seedbed preparation combined with delayed planting. Giant foxtail, as well as green and yellow foxtail, germinates early in the season. In central Illinois this germination starts approximately Apr. 15 and continues heavily for at least one month.

Many farmers do not take advantage of this situation. They prepare their seedbed around the last of April and then immediately plant soybeans. It is under these conditions that soybean fields are very apt to become thoroughly infested with foxtail. On the other hand, if the primary crops of foxtail are destroyed between Apr. 15 and May 15, it will do a great deal toward eliminating the early competition from this weed. It is true that giant foxtail and even some of the other foxtails will germinate later on in the season, but certainly from our records the primary germination is early in the year and it is from this early germination that we get our severe competition to soybeans.

By planting soybeans early in our foxtail area while the soil is still cool we get slow germination of soybeans and a rapid germination of the giant foxtail. But by planting our soybeans the latter part of May or the first of June we not only get much less germination of foxtail but we also get very rapid germination of soybeans, frequently getting emergence in four days. This allows us to cultivate much sooner than we would in early planted beans which in turn gives us much better control of the seedling grass. The rotary hoe is considered by many people as the best implement we have to fight weeds in soybeans. It is certainly true if used right.

There are several other cultural developments that are helping the farmers to control grasses in soybeans which may become more important. One of these developments has been to try to prepare a rough seedbed on the surface at soybean planting time. The thing that brought on this idea was that a very good seedbed preparation always produces the maximum germination of the annual grasses, particularly giant foxtail. Many of the farmers have turned to field cultivators that prepare a good seedbed several inches below the surface but leave the surface rough. By this method they are getting good bean germination and getting them up well in advance of the germination of the giant foxtail. It would appear that this seedbed preparation idea is good and although it does not solve our giant foxtail problem I believe it will help materially to get soybeans off to a good start in their struggle with this annual grass.

Furrow Openers

A second cultural practice that is being used quite extensively in the annual grass area is the use of furrow openers. These furrow openers plant soybeans in a shallow trench and the farmers are using this idea to cover up the seedling foxtail after the soybeans are several inches through the ground. The use of furrow openers can only be combined with delayed planting because this method depends upon rapid germination of the soybeans so that the dirt can be thrown down in the furrow.

A third cultural practice being initiated on a small scale has been to plant soybeans in 28-inch rows instead of the usual 40. We all know that soybeans once they are established do form a great deal of shade and in many areas are considered a good weed control crop for this reason. Although soybeans in 40-inch rows do eventually fill the center of the row this does not happen until later on in the season, but if the soybeans are planted in narrower rows the center of the rows will be filled sooner; as a result there will be less germination of late weeds, particularly the grass weeds. This has proved to be true in some areas and it certainly appears worthy of further investigation. Added weed control and slightly higher yields in 28-inch rows as compared to 40-inch rows could offset the cost of extra equipment needed.

Although these new cultural practices are interesting and will probably develop in certain areas our main cultural weed control in soybeans must still be accomplished by early seedbed preparation combined with delayed planting. Chemical weed control is extremely promising in soybeans but it offers limited possibilities at the present time in relieving the serious weed situation.

Pre-emergence sprays offer particular

promise in soybeans because if they could be successfully used they would control this early weed growth which is the most serious to us insofar as yield reductions are concerned. Unfortunately the pre-emergence chemicals available for soybeans have only been partially successful. They appear much more promising on some of the lighter soils but on the heavy soils here in the main soybean belt the results have been quite variable.

The two main chemicals being recommended for pre-emergence weed control in soybeans are dinitro and Chloro-IPC. Each of these chemicals has some advantage over the other chemical but the end results are somewhat similar. The Chloro-IPC has given slightly better control of the annual grass weeds but seems to be a little less effective on the general broadleaf weeds than the dinitro.

Both of these chemicals are being recommended at rates of six to eight pounds of the acid per acre as an over-all treatment. The rates are slightly lighter for some of the lighter soils. On the heavy soils here in the soybean belt this rate of application seems to be at the lighter side in order to get good weed control and yet it is on the heavy side insofar as soybean injury in concerned. In other words, we could get much better weed control if we could use 10 pounds of each chemical but insofar as soybean injury is concerned the six to eight pound range is probably at the upper limit.

Pre-emergence chemicals have generally not been too successful during short drouth periods at planting time. This has not been too serious because during these short dry periods we seldom get normal weed growth. However, they have not always worked successfully under moist conditions when we do get normal weed growth. This has been the most serious limitation. In a series of approximately 12 tests at the Illinois Experiment Station this year the weed control varied from approximately 95 percent to 0. These 12 tests were scattered over our state in various locations under different soil and climatic conditions. It would appear that these chemicals will not be accepted by our soybean growers on a large-scale basis until the outcome can be more nearly predicated insofar as weed control is concerned.

We do believe that these chemicals should be used by farmers on a trial basis. We think that they will work very well on some soils in certain areas. It would appear from the results of the various experiment stations that these are probably the best chemicals available at the present time. All indications are that there may be new and better pre-emergence herbicides available.

Insofar as post-emergence treatments on soybeans are concerned there are very few chemicals that can be used on the growing soybean plant without severely injuring them. One of the most promising treatments for limited areas has been 2,4-D applied when the soybeans are four to eight inches tall. We would have to consider this as an emergency measure. Soybeans at this stage of growth are more tolerant to 2,4-D than at the later stages of growth. A light-rate application of 2,4-D, somewhere in the neighborhood of 1/16 pound of acid per acre, seems to have very little effect on final yield. This rate of application is sufficient to kill cocklebur, giant ragweed, and pigweed. It will also hold many of the other broadleaf weeds in check so that the competition is much less severe to the soybeans.

The only area where this light-rate treatment seems feasible is in the bottomland areas where these annual broadleaved weeds are extremely serious each year, and in these areas it should only be used as an emergency measure.

Again with this type of treatment, as with pre-emergence sprays, we would first advise small area treatments until the farmer sees how the treatment works in his area and how well it controls weeds. It is up to him to make the final decision as to whether he should spray his entire acreage.

The other post-emergence treatment that has some possibility on soybeans is the use of the herbicide oils. These are being tested at several stations in the cotton belt on soybeans this year, and we are doing the same at the Illinois Experiment Station. It would appear that soybeans have considerable tolerance to these oils and we know from experience in the cotton belt that these oils are very good for controlling weeds in the seedling stages. Whether these oils will be of importance in soybeans cannot be determined at the present time.

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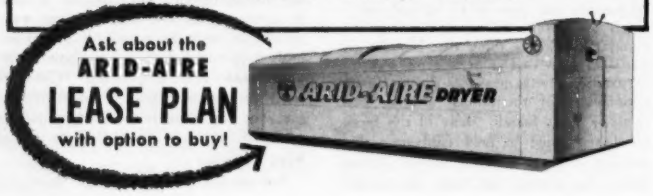

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Higher Efficiency Through Research

By M. G. WEISS

Director of Field Crops Research, Bureau of Plant Industry, Soils and Agricultural Engineering, ARA, USDA.

THE COST of growing an acre of soybeans has increased appreciably during the past decade. With higher capital investment, labor costs, and general expenses, such increase was inevitable. The increase in the market value of soybeans has not been consistently proportionate. As a consequence the margin of profit has been reduced. In fact efficiency of production determines largely whether a profit is realized from that acre of soybeans.

More Beans Per Acre

The margin of profit on an acre of soybeans is dependent largely on the quantity of high quality beans obtained per acre. Many phases of the cooperative soybean research program of the state agricultural experiment stations and the U. S. Department of Agriculture have as their principal objective higher production per unit area. The development of varieties with inherently higher yielding capabilities is an important objective of this research program.

Improved Varieties

Ten soybean varieties with higher yielding capacity have been released during the past decade. These varieties are a product of the cooperative program initiated in the North Central states in 1936 and in the Southern states in 1942. They represent the completion of the first cycle of variety development through hybridization and selection. They constitute an important achievement goal as, with the release of the 10th variety, Dorman, a high-yielding variety is available for every major soybean producing area in the United States. They are estimated to have a 20-percent increased yielding capacity over previously grown varieties. They have added five bushels of soybeans to the average acre with no appreciable increase in cost of production.

The possibilities of increasing yields through development of new varieties have not been exhausted. The second cycle of variety improvement is well under way. Two new varieties having still greater production potentialities will be released to seed growers next year. One of these varieties, Clark, is expected to stimulate yields in the southern portion of the North Central states producing area. It matures approximately a day earlier than Wabash and a week later than Lincoln and is superior in yield to both. Unit production will be stimulated in the South by the release of the second variety, Jackson. It matures approximately two days later than Roanoke and surpasses in yield all of the varieties presently grown in the deep South.

Time of Planting

Research has emphasized the importance of proper time of planting soybeans for maximum production. In the northern fringe of the soybean producing area, the short growing season necessitates early planting for maximum production. Low soil temperature, however, is a limiting factor in earliness of planting and is usually not adequately high for rapid germination until late May.

In the heart of the North Central area, plantings from May 10 to May 25 of adapted varieties have given optimum yields. Earlier planting results in poor stands, retarded early growth, and more serious competition from weeds. Later plantings result in lower yields. To avoid frost injury, earlier varieties than those giving maximum yields must be used.

In the Midsouth and Eastern Coastal regions planting during any part of May gives optimum yields. Planting earlier than May 1 gives slow germination and early growth, thereby stimulating weed competition. Early planting also results in stunted plants due to exposure to short day lengths during the spring. Yield reductions accompanying delayed plantings are not as serious as in the North Central area. Furthermore, it is not necessary to plant an inherently earlier variety as in the North.

In the Gulf Coast region plants are stunted by short day length when seeded prior to the middle of May. The planting time for optimum production therefore is from May 15 to June 15.

Row Widths

Production is also influenced by methods of planting. Row widths giving optimum production vary greatly from North to South as they are associated with length of the growing season. In the extreme North, narrow row widths, approximately 18 inches, give maximum yields. In the heart of the North Central producing area 21- to 24-inch rows have been found to give maximum production. Row spacings for optimum yields become progressively wider with longer growing seasons and in the South there is no advantage in spacing rows closer than 40 inches.

However, when the growing season is reduced by delayed planting, even in the South reduced row widths frequently give higher yields.

Rate of Planting

Rate of planting for optimum production varies somewhat with row width. In the North Central area slightly higher rates are justified with narrow rows. In general, rates of one bushel per acre of varieties with average seed size give optimum yields in the North Central area whereas no increases in yields result from planting more than one-half bushel per acre in the South.

Weed Control

Weeds are a serious detriment to high unit production. Weed control has been mentioned previously in connection with cultural methods. Early plowing and disking of the soil followed by a delayed planting date permits destruction of many weeds prior to planting. Rapid germination and early growth of soybeans which follow delayed planting give further effective weed control.

Methods of planting are also important. Without weeds optimum yields could be obtained with solid drilling. Where soil and climatic conditions permit, rapid tillage machinery, such as the spiketooth harrow or rotary hoe, are highly effective in destroying germinating weeds prior to and following emergence of the soybeans. Unfortunately, some heavy soils such as encountered in the Mississippi Delta area do not lend themselves readily to this practice. In other regions prolonged rainy periods may deny use of such implements while weeds are subject to destruction by this means.

Growing in rows permits elimination of weeds between the rows through cultivation and thereby prevents prohibitive losses. Nevertheless, some losses result from weeds growing in the rows. Moderate infestations of foxtail and smartweed in the North Central area in controlled experiments were shown to reduce yields by 10 percent. Even when such weeds were re-

Research men are fundamentally interested in helping you produce the largest possible number of high quality soybeans per acre.

moved at relatively early stages of growth, production losses resulted. The necessity of early control of weeds even when soybeans are grown in rows is apparent.

Control of weeds in soybeans by the use of chemicals is being studied extensively. In the North Central states dinitro and 3-chloro IPC are being tested widely as pre-emergence herbicides.

Dinitro has been studied for several years and is now being recommended by a few state experiment stations. A slight reduction in stands can be expected with its use. The weeds may not always be controlled if the soil is dry immediately following planting.

3-chloro IPC also causes slight injury to soybeans under certain conditions but seems less hazardous in this respect than dinitro. At present it must be recognized there is some element of risk in using either material and the grower must weigh this hazard against potential losses from weeds.

More promising experimental materials are being tested but are not available commercially at present.

Control of weeds by post-emergence application of materials has been tested in the South. Excellent control of seedling grasses and weeds in young soybeans has been obtained on an experimental basis. Herbicidal oils, such as are used to control weeds in cotton, have given promising results. The oils are applied as a directional spray from 12 to 35 days after emergence of soybeans. Further work with herbicidal oils seems highly justifiable. At present they are not recommended for extensive plantings.

Inoculation

The bacterium which causes nodulation in soybeans and permits fixation of nitrogen from the air has become widely spread through soils in major producing areas. In most cases research shows no stimulation of production from inoculation of soybeans when grown in fields where nodulated soybeans were recently grown.

Nevertheless scattered fields occasionally are found where the bacterium is not present. Strains of the bacterium have been found to differ in efficiency and in certain fields highly efficient strains may not be present. Inoculation therefore is considered a safe insurance.

Seed Treatment

Treatment of seed with a disinfectant has been shown to stimulate stands in most experiments. Through the North Central production region such stimulation is not reflected in increased yields. Only in the northern fringe of the North Central area and in the South is seed treatment recommended as a regular practice. In the North Central states yield increases from seed treatment are obtained only when seed with low germination must be used.

Fertilization

In the North Central region the application of fertilizer to other crops such as corn in the rotation has been shown to be more economical than direct application on soybeans. In vast areas of the South, however, both potassium and phosphorus are seriously limiting factors and direct application of these elements is necessary for optimum production. Nitrogen, which is also low in these soils, will be supplied in sufficient quantities for optimum production if the plant roots are well nodulated.

More Oil Per Acre

The value of an acre of soybeans is dependent on yield of oil as well as yield of beans. Although oil content is not taken into consideration in determining the market grade of soybeans, the yield of oil per ton of soybeans is reflected in the value and unit price of the crop. Higher yields per acre, of course, are one way of stimulating oil production per acre.

The new varieties which we have discussed previously have increased yield. They also have higher oil content than previously grown varieties. It is estimated beans of the improved varieties yield from one to two pounds more oil per bushel.

Less Shattering and Harvest Losses

Even after a maximum yield of soybeans has been produced in the field, the battle is not yet won. The many losses which frequently occur during the harvesting operation, appreciably lower efficiency of production. Some varieties are inclined to shatter—the pods split open and drop their beans to the ground.

Tremendous strides have been made in developing varieties with greater shattering resistance. Nevertheless, further progress can be made. Throughout the South, particularly during the recent series of droughts, the Ogden variety has shown a tendency to shatter. In the irrigated valleys of the Southwest, where soybeans are strictly on an experimental basis, most varieties currently grown in the South shatter prohibitively. Nevertheless a few varieties and experimental strains showed great resistance to this weakness. Further improvement in shattering resistance is assured.

Field losses during the harvest operation are frequently estimated from 10 to 25 percent. An 8-percent loss is considered reasonable.

Many of these losses occur as a result of inadequate adjustment of harvesting machinery. Recent research has shown excessive losses occur when the cutter bar is raised too high. Slow cylinder speeds are a requisite to prevent excessive splitting and damaging of beans.

Proper choice of variety and cultural methods also minimize harvest losses. In the North Central states varieties with greater height have been found to produce pods higher off the ground. Cutter bar losses from varieties such as Hawkeye and Blackhawk are considerably less than those from the short varieties, Richland and Habaro. Growing soybeans in narrow rows, which was emphasized for maximum yields, also causes pods to be borne higher off the ground and thereby minimizes harvest losses.

Loss from Diseases

The most economical and practical method of minimizing disease losses is through development of resistant varieties. We have discussed previously the benefits of seed treatment which controls many seed rot and seedling diseases. Control of diseases of growing plants through the use of fungicidal sprays has been investigated but was not found practical.

Excellent progress has been made, particularly in the South, to control major diseases through inherent resistance of varieties. Sources of resistance of the diseases bacterial pustule, wildfire, target spot and mildew have been found and are being incorporated into new varieties.

In the North Central states resistance to bacterial blight, brownspot and frogeye leafspot have been found and are being used in breeding programs. Unfortunately good resistance to stem canker and brown stemrot, the two most destructive diseases in the North Central area, has not been located

Production Practices

Production practices are being investigated and give promise of increasing production efficiency. Like all cultivated crops, land on which soybeans are grown is subject to erosion, particularly throughout the early growing season and after the crop has been harvested. On land with greater slopes than 4 percent it has been found highly beneficial to plant soybeans on the contour in the interest of reducing erosion hazards. In the Missippi Delta area where large plantings of soybeans are made by individual growers, a reduction in capital investment is possible through the growing of several varieties. Normally a 12-foot self-propelled combine has the capacity to harvest 250 acres of one variety of soybeans. With the growing of three varieties such as Dorman, Ogden, and Roanoke, which differ in maturity by approximately 10 days, the harvesting capacity of a combine can be increased to 600 acres.

In the Coastal Plains area one-year rotations have been studied in an effort to increase production efficiency. Double cropping the land with wheat and soybeans has given average yields over the last four years of 33 bushels of wheat and 30 bushels of soybeans per acre. Although the delay in planting the soybeans necessitated by the double cropping system has resulted in lower yields, such decrease was only four bushels per acre below that obtained at an optimum planting date. Breeding soybean varieties specifically adapted for such a rotation seems entirely possible and will enhance the potentialities of double cropping systems.

Fertilizer Usage in Soybean Production

By A. F. STEPHENS
General Agricultural Agent, Gulf, Mobile & Ohio Railroad Co., St. Louis, Mo.

WE ARE JUST beginning to appreciate the fact that soybeans have one of the highest nutrient requirements of all the crops we grow. Their high protein and mineral content is the reason they are such good feed. There is much interest in the use of fertilizer for this crop.

I am going to base my remarks on the information developed through my association during the past 20 years with a soybean production program conducted on the prairie area of northeast Missouri. I will also present some research data from the soils department of the Missouri College of Agriculture and some results of soil treatments from the records of the Illinois 10-Acre Soybean Production Contest.

When soybeans were first introduced into this country, their principal use was for hay. They were widely recommended as a legume hay crop that would produce well on poor land. A fair yield of roughage in terms of pounds could be produced on soils of low fertility, and while the tonnage fooled us, it did not fool the livestock that consumed it. Dr. Wm. A. Albrecht, chairman of the department of soils at the University of Missouri, told me the other day that in some experiments the analysis of soybean hay grown on soils deficient in essential plant foods had less nitrogen, less phosphorus, and less potash than was contained in the seed from which the plants grew. This being true of hay, we certainly cannot expect satisfactory yields of a grain crop that contains approximately 42 percent protein.

I had the privilege of working with Dr. A. W. Klemme, extension specialist in soils for Missouri, on the northeast Missouri soybean program. He was on your program when you last met in St. Louis. Dr. Klemme really should be making this talk, but unfortunately for us here in Missouri, he recently left us to become associated with the Murcheson interests in southwest Texas and New Mexico where he will have an opportunity to test all of his great ability on a soils program in that area.

The success of our program in developing the commercial production of soybeans in northeast Missouri is due primarily to the Klemme leadership in connection with the soil fertility phase of the program. In view of the foregoing, I am going to quote Klemme in order to provide a background for the fertilizer results to be presented.

According to Klemme, a 33-bushel-per-acre yield of soybeans will remove 143 pounds of nitrogen, 45 pounds of phosphorus and 55 pounds of potash. In order to produce a satisfactory yield, we must in addition to satisfying the calcium requirement meet the demands for phosphorus and potash by applying adequate amounts of fertilizer. The well-inoculated plant will take about 70 percent of its nitrogen requirement from the air—the remainder must come from the soil.

The root system of the soybean plant must be taken into account in connection with our methods of applying plant food. The soybean has one or two very deep tap roots and has only about one-half as much root surface in contact with the soil as the oat plant and one-thirteenth as much as winter rye; consequently, unless the soil is high enough in fertility to quickly replenish the supply of soil nutrients as rapidly as the soybean root system removes it in the limited feeding area, satisfactory growth and yield will not be obtained.

Began in 1932

We began a soybean production program in 1932 and 1933 with a series of variety tests with cooperating farmers in the territory tributary to our line in northeast Missouri. The following counties were included—Pike, Ralls, Randolph, Audrain and northern Boone County. The variety tests were followed by the introduction of seed of adapted high yielding varieties in connection with a program of improved cultural practices. Yields were increased, but the increases as a result of good varieties and good tillage methods were not enough to produce satisfactory yields. The advice of Dr. Albrecht and Dr. Klemme was sought, and in 1943 the Soybean Production and Soil Fertility Program was inaugurated by our company in cooperation with the soils department of the Missouri Agricultural Extension Service.

Soil in this area is Putnam Silt Loam—a light colored, flat to gently rolling prairie soil, with a tight clay pan, low in available potash, low in phosphorus and with an average lime requirement of two to three tons per acre.

The program therefore was designed to direct the attention of the growers to the value of a complete soil fertility program that would supply the essential mineral elements and improve the organic content of the soil. The awards were based on the percentage increase obtained by participating farmers on five acres of treated land compared with an untreated check strip one rod wide through a representative section of the field. This program was conducted from 1943 through 1946 and 140 to 165 individual farmers participated in the program each year. Records of soil treatments and cultural practices were required.

In Audrain County, 19 crops receiving only limestone gave an average increase of 4.5 bushels per acre; and 29 crops, receiving lime plus fertilizer, gave an average increase of 9.2 bushels per acre (200 to 250 pounds of 0-20-0, 0-20-10, or 0-14-7).

The following are the 1944 records of the winners in three of the participating counties where Putnam Silt Loam is a predominating soil type: Gilbert Fowler, Ralls County, plowed down 150 pounds of 0-14-7 fertilizer and produced a yield of 22.6 bushels of Macoupins per acre and 17.4 bushels with no treatment, or an increase of 5.2 bushels per acre.

Tom Maxwell, Audrain County, plowed down 200 pounds of 4-12-4 fertilizer and produced 22.5 bushels Macoupins per acre. No treatment produced 18.3 bushels per acre, or an increase of 4.3.

A. L. Dunwoody, Randolph County, plowed down 200 pounds of 4-12-4 per acre plus lime and produced 28.7 bushels of Illini per acre. No treatment produced 19.3 bushels per acre, or a gain of 9.4 bushels.

The yields were low even where soil treatments were used, but it should be noted that these were soils of low fertility that had not received previous treatment.

Awards were also made for the highest county yields. The records for 1944 for the same counties may be of interest.

The fertility program of the College of Agriculture and the GM & O Road has made soybeans a leading cash crop in northeast Missouri.

George Winders, Ralls County, 23.5 bushels per acre.

Charles Davenport, Audrain County, 36.7 bushels per acre.

Raymond Roberts, Randolph County, 35.7 bushels per acre.

The importance of limestone is emphasized by the results obtained by Charles Davenport of Audrain County who produced the 36.7 bushels per acre yield in 1944 following an application of three tons of lime per acre. The previous year the same field without lime, but with 200 pounds of 0-14-7 plowed under, produced only 23.7 bushels per acre. The field had been broken out of sod for the first time in 1941. I was in this field in August of 1943 and it was a beautiful field of beans with enough plant growth for 40 bushels.

Good soil treatments have become the general practice in this area and average yields have continued to increase. In 1949 John Mollete of Mexico, Audrain County, produced a high yield of 48.6 bushels per acre, with Carver Brown of Laddonia, only a few tenths of a bushel below him.

The average yield for the area in 1937 was 10 bushels per acre; 19 bushels per acre in 1948; and 22 bushels per acre in 1950.

The average corn yields for 1937 were Audrain, 18.9 bushels per acre; Ralls County, 27.1 bushels per acre; and Randolph County, 24.1 bushels per acre.

Illinois Results

The Illinois Ten-Acre Soybean Production Contest is based upon yield, oil content, quality and cost. During the past five years my company has offered awards to participating farmers in the Illinois counties we serve. The award winners obtained the following yields:

1948—Aden Danielson, LaSalle County, 54.2 bushels per acre.

1949—L. Parke Kerbaugh, McLean County, 42.14 bushels per acre.

1950—Again Mr. Kerbaugh, 44.72 bushels per acre.

1951—H. L. Stiegelmeier, McLean County, 48.97 bushels per acre.

1952—Fred Bergmann, St. Clair County, 47.68 bushels per acre.

All of these men produced their beans on fields that had received lime and rock phosphate.

Soybeans in the commercial area of Illinois have not up to this time required special treatment.

Dr. George E. Smith of the department of soils, University of Missouri, has given me some results in southeast Missouri from the field near Sikeston, where lime is apparently a limiting factor on Lintonia Sandy Loam. The field was well supplied with phosphorus and potash and produced the following yields:

No lime, 26 bushels per acre. 500 pounds of lime, 27.2 bushels per acre. One ton of lime, 30.7 bushels per acre. Two tons of lime, 40.2 bushels per acre. The beans were S-100 and were grown in a two year rotation of wheat, a legume and soybeans.

Nitrogen is a very much discussed subject in this area as well as many others at this time. We have not been able to obtain very significant results from the use of commercial nitrogen in any form on soybeans in this section. Research shows that where soybeans are supplied with nitrogen fertilizer they fail to inoculate properly. It would appear that the plants are lazy and if quickly available nitrogen is supplied, their fixing capacity is low. This might also suggest that on very fertile soils they are not the soil builders we have been led to believe.

A 33-bushel soybean crop removes more nitrogen, more phosphorus, and more potash than a 100 bushel corn crop.

100 bushels of corn, 90 pounds of nitrogen. 33 bushels of beans, 143 pounds of nitrogen.

Corn, 30 pounds of phosphorus. Soybeans, 45 pounds of phosphorus.

Corn, 25 pounds of potash. Soybeans, 55 pounds of potash.

The commercial production of soybeans can only be successful on soils well supplied with calcium, phosphorus, potash, and organic matter. For the northeast Missouri area, the following recommendation is made: Limestone, 1,000 to 1,500 pounds of rock phosphate, and the amount of potash indicated by the soil test.

Row applications of fertilizer have been generally disappointing. It is believed that this crop which has its highest rate of nutrient absorption during the summer when the surface soil is dry, fails to absorb much of the row application. This is the reason for deeper application, and results indicate that the plow down applications are superior. When fertilizer is distributed throughout the soil, the rate of application must be increased to permit the roots to contact sufficient particles. A buildup of sufficient reserves in the entire plow layer must be accomplished to obtain satisfactory yields on soils of low fertility.

Soybeans, long known as the wonder crop because of the great variety of its uses, is a wonder crop to me because of the wealth it has produced in our northeast Missouri territory. Audrain County is typical for the area where there was no commercial production in the 30's, and last year their crop was valued at over 4 million dollars. Many farms were paid for in the middle 40's by one crop of beans. Many growers are producing 100 to 150 acres of beans each year, a few as high as 500 acres.

This is the situation in an area of Putnam Silt Loam that in the 30's some people said we could not afford to lime, that the commercial production of soybeans had no place, and that the area should be seeded to grass for pasturage.

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Margarine and Soybean Oil Markets

By S. F. RIEPMA
President of the National Association of Margarine Manufacturers

DESPITE AN increase in the per capita consumption of fats and oils within recent years, there is a growing surplus today of edible oils and the commodities from which edible oils are made. The total carry-over of edible fats and oils on Sept. 30 will not be far from 1.6 billion pounds. Free stocks will not be excessive, however, because of very large government held stocks of cottonseed oil, soybeans and butter. As you know, the prospects for oil production in the year beginning Sept. 30 are good and the carry-over on Sept. 30, 1954, will be substantially higher than the existing surplus.

You are concerned about the prospects of utilizing this surplus and in particular of utilizing any surplus of soybean oil. All outlets for the edible fats and oils consumed in this country become of major importance to you.

You must maintain and expand the outlets you now have and find new ones if that is possible. Otherwise, your entire industry must suffer. For a time support prices can cushion economic shocks but, eventually, prices for oil must be allowed to seek their natural level.

The government probably will not continue to support prices at 90 percent of parity, or even 75 percent of parity, in the face of constantly accumulating surpluses. Even if the price for meal remains comparatively high, a low price for oil easily could make the entire soybean crop unprofitable to producers.

We are in a period of surpluses, and quotas probably will be imposed in 1954 on cotton, wheat and, perhaps, other crops. This will expand the opportunities for soybean production, but at the same time it complicates the problem of disposing of your own crop at figures which will pay you satisfactory rates for your land and labor.

First, let us take a look at the outlets we now have. In 1952, for example, here is how the oil was utilized: shortening, 849 million pounds; margarine, 651 million pounds; other edible products, 327 million pounds; non-food uses, 263 million pounds.

Before the war soybean oil represented only about 7 percent of the total supply of food fats by weight. Last year soybean oil accounted for 20 percent of the total supply and was exceeded in volume only by lard. In 1944 soybean oil displaced cottonseed oil as the major vegetable oil. Since then it has been the leading vegetable oil and, with acreage reduction in prospect for the cotton crop, is likely to increase its lead in the near future. Soybean oil accounted for 42 percent of all vegetable oils produced in 1952.

The trend in the use of soybean oil by its two largest consumers, margarine and shortening, also has been steadily upward. Since 1946, when some 200 million pounds of soybean oil were used in the manufacture of margarine, the annual requirements have increased by over 500 million pounds to an anticipated level this year of some 725 million pounds.

Shortening is slightly ahead of margarine as an outlet for soybean oil but, if the rise in the production of margarine continues as it has in the past few years, margarine may take the lead in the next few years. In this connection, I might point out that margarine manufacturers have led in soybean oil research

Despite existing surpluses, there are favorable factors in the supply and demand situation for edible fats and oils. Our population recently passed the 160 million mark and has an annual rate of growth of approximately 1.7 percent. It looks as if our per capita consumption of edible fats and oils will be around 44 pounds for the next several years. If this assumption is true, over-all consumption will approximate 7 billion pounds in 1955.

There is a high calory content in fats and oils, but you may want to tell the public that, within limits, fats and oils are highly desirable in all diets. There is plenty of evidence that people do not clearly understand the nutritional facts concerning fats and oils.

We cannot yet fully gauge the prospective decrease in oil production which is likely to grow out of the return to the quota system in cotton production. Under ordinary circumstances, a cotton crop of 14,605,000 bales — the indicated production on Aug. 1—will yield around 1.7 billion pounds of oil. If production should decline to 11 million bales, the annual average production of cottonseed oil will be around 1.2 billion pounds, a decline of a half billion pounds from production of the past couple of years.

Oils Interchangeable

Cottonseed oil and soybean oil are interchangeable. Naturally, any reduction in cottonseed oil production is likely to increase your prospective market. While cottonseed is important to cotton producers, it is not as important as is the production of lint and the surplus in cotton fiber probably means a cutback in production. A reduction of 400 or 500 million pounds in the annual production of cottonseed oil would do a lot toward stabilizing oil supplies, although it is a real question whether cotton production will fall as low as 11 million bales annually.

Export prospects for fats and oils are somewhat uncertain and cannot be depended on to dispose, year in and year out, of any sizeable quantity of domestic oil production. Nevertheless, the export market must not be neglected. To repeat, one of your big problems is to maintain and expand, if possible, every available outlet for your oil production. Over a period of years worldwide production of fats and oils probably will do more than keep up with population increases and a worldwide rising standard of living. Until demand reaches supply, the existing surpluses are a real problem.

It is my opinion that margarine still offers the best prospect for an expanded use of soybean oil. This statement is true, however, only if we see to it that margarine is given an opportunity to expand its market.

If the increase in the production of margarine continues at the rate of the past five years and the consumption of soybean oil continues at the 1952 rate, over 900 million pounds of soybean oil will be used in margarine in 1958. One may comment that margarine cannot hope to maintain its recent trend, but that is a matter of opinion. Margarine is as nutritious as butter; it is not inferior in any

way, and is much more economical. My observation has been that once a family begins to use margarine, it continues to use margarine.

As has been pointed out many times, butter is not a profitable use for milk. The returns from fluid milk and other manufactured uses are greater. Once upon a time butter was the balance wheel of the dairy industry, but that time has passed. The shift is away from the production of butter. Dairy herds have been declining in areas where butter is the primary product of milk.

From the standpoint of the nation's health and nutrition, and from the standpoint of the dairy industry itself, the shift away from butter is desirable. There is no real reason why most of the table spread market cannot be turned over to margarine to the benefit of the dairy industry, the margarine industry, and the country itself.

In 1950 the Congress repealed anti-margarine legislation which taxed yellow margarine 10 cents a pound. The vote was overwhelming despite strong opposition from butter interests. The trend in the states against anti-margarine legislation has been just as marked. Only two states, Wisconsin and Minnesota, prohibit the manufacture and sale of yellow margarine. Only this year Iowa, South Dakota and Montana repealed their statutes against yellow margarine.

It is astonishing and alarming, therefore, to find the Department of Agriculture is considering a program which once again will put the federal government into the business of discriminating against margarine. The government is buying butter to support its price and has over 250 million pounds on hand. Already the Department has set aside 75 million pounds for the school lunch program; it will sell up to 50 million pounds to the Army at 15 cents a pound. Butter given away to the school lunch program and butter sold the Army at cut-rate prices displaces margarine, which formerly had the bulk of both markets.

Only Beginning

Thus programs already in operation discriminate against margarine, but this is only the beginning. The government is buying butter faster than it can be given away or sold at reduced prices in selected channels. Butter is perishable, and the government is at a loss to know what to do with it. As a result, the Department of Agriculture is considering the subsidized sale of butter in the open market.

Various schemes have been proposed. There have been reports that one pound of government butter would be given away for each pound bought in the market. Other reports have indicated that the government is thinking of selling its butter at 12 cents below the support price, or around 55 cents a pound.

Regardless of the form the subsidy takes, the sale of government butter in the open market is likely to have far-reaching consequences from the standpoint of the margarine industry, the soybean industry and the cottonseed industry also.

Let us say, for example, that the subsidy announced at the beginning of the program is 12 cents a pound. It is a question in my mind whether butter will move freely in the market at 55 cents a pound. Margarine — which is just as good in every way — still would be only about half the price of butter. If the 12 cents is not enough to move the butter, the amount of the subsidy probably will be increased. Otherwise, the program is ineffective, since it does not accomplish its primary purpose of getting rid of the butter.

The market price of butter is going to drop by the amount of the subsidy, and the government will become the sole purchaser of butter. The Department of Agriculture cannot pay a subsidy of 12 cents a pound on butter in the Chicago area and not do it in the New York and other areas. An experimental program might be tried out in a community, or area, to see whether it will work, but it has to be broadened if it is to be continued. The same thing is true of any program whereby two pounds are given away for the price of one.

The government may get rid of its butter but, if so, it will be at the expense of margarine.

The support program for butter is to continue until next April. It is doubtful whether it will be discontinued in an election year. The prospect of 67-cent butter over a considerable period of time could be very attractive to some producers, particularly since other farm prices are falling.

The only way the government subsidy program for butter can succeed is to drive margarine out of the market.

I wish to point out that the contemplated subsidy program will hurt the margarine industry and it will injure the cotton and soybean producers, as well as other parts of the cottonseed and soybean industries. The value of a subsidy program to the dairy industry can be questioned. Many persons feel that significant changes are coming in the production and marketing of dairy products. Some experts feel that the future of the industry lies in the production of fluid milk and byproducts other than butter.

If this is true, the situation from the standpoint of margarine is all the more alarming. The government has fixed a purchase price for butter which is increasing production beyond what it otherwise would be. Inevitably the government's stocks of butter are rising. This increase then is used as the excuse for a subsidy program —which to succeed must drive margarine out of the market.

I suggest, therefore, that you protest the proposed butter subsidy plan with all the vigor at your command. Your demand that discrimination against the margarine industry cease was one of the reasons for the repeal of the federal anti-margarine laws. I am hopeful that you can help prevent a return of discrimination against margarine and against soybean oil.

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Frozen Desserts As a Market for Soybean Oil

By E. M. DECK
Mrs. Tucker's Foods, Inc., Sherman, Texas

THE PRODUCTION of edible fats and oils in the continental United States has increased during the last decade to the point where we have become net exporters of these products; we now produce more edible fats than we consume. As you all know this has come about because of the great increase in the production of soybean oil. We have gone from a very low production of soybean oil up to a production of about 2,414 million pounds in 1952-53.

You as producers and we as refiners have to find a market for all of this increased production of soybean oil. To do this, we must work together and we must be aggressive if we expect to get our fair share of the consumer's dollar.

The already existing edible markets in which soybean oil and soybean oil products compete, the chief competition being meat fats, cottonseed oil, corn oil and some peanut and coconut oils, are as follows: shortening, margarine, bread, cakes, cookies, prepared mixes such as cake, biscuit, pie dough, sweet dough and numerous others which are sold to homemakers and institutional users, for frying potato chips, nuts and many other fried foods, for salad dressings and mayonnaise, for canning of fish products, in canned soups, candies of various kinds and many other food products.

In these existing markets, the success of soybean oil competition depends on its quality and price as compared to the quality and price of the competitive fats. The price of soybean oil is usually lower than cottonseed oil and peanut oil, and sometimes lower than corn oil because some feel that the quality of soybean oil is not as good as these other edible oils. Unfortunately, in the not-too-distant past, much of the soybean oil and soybean oil products on the market tended to revert in flavor on aging. This caused the prepared mix manufacturers, the potato chip manufacturers and the mayonnaise and salad dressing people to be afraid to use soybean oil products. A prejudice was built up against this oil.

While the producers and refiners have made great improvements in the quality of soybean oil products, we still need more research work to put soybean oil up where it will, because of its quality, demand a price equal to, or higher than other domestic oils. You as producers and we as refiners need to work together on this research program.

Today a number of refineries are making hydrogenated soybean oil shortenings which can be used interchangeably with other hydrogenated vegetable oil shortenings. Also a number of refineries are producing soybean cooking oil and soybean salad oils which are flavor-stable enough for certain uses such as salad dressing, mayonnaise, fish, and soup canning. Not all refineries can do this, or for some reason, do not do it and this causes confusion. We have had customers tell us, "Yes, your product containing soybean oil is fine and gives us no trouble, but we have to buy from a number of sources, and we can't be sure which source will give us a good product and which won't." For this reason they set their oil or shortening specifications so that no soybean oil is allowed, or only a limited percentage is allowed. A number of the shortening and oil specifications of the U. S. Quartermaster Corps specify cottonseed and/or peanut oil only.

Much of this prejudice against soybean oil has disappeared altogether, or is only a minor factor with margarine manufacturers, potato chip fryers, bakers, restaurant owners and salad dressing manufacturers. Your help is needed through research and public relations to free soybean oil of all prejudices. This would expand the market considerably.

New Outlet

There is now developing rapidly a new outlet or market for edible fats and oils and soybean oil which, if properly handled and promoted, can obtain a large share of this market.

The manufacturers of mellorine or frozen desserts started in Texas five or six years ago, and this product has rapidly gained momentum in the past two years. Mellorine is made the same as ice cream except the butterfat is replaced by vegetable or animal fats. Mellorine bears the same relation to ice cream as margarine bears to butter. Mellorine, when fortified with vitamin A, is as wholesome and nutritious as ice cream, the same as margarine is as wholesome and nutritious as butter. Margarine has become a big factor in our food supply simply due to its economic advantage over butter. Many people cannot afford to buy butter but have the right to a good table spread such as margarine.

The same is true of mellorine. Because of the high price of butterfat, ice cream prices are out of reach of many, but mellorine can be produced at a price they can afford. Again it is simply a matter of economics. The only difference in the production cost of ice cream and mellorine is the difference in the cost of butterfat and food fats such as hydrogenated soybean and/or cottonseed oil, or coconut oil or processed meat fats. This usually makes the production cost of mellorine about 18 to 40 cents per gallon lower than the production cost of ice cream.

The following is a typical formula for mellorine:

Milk solids, not fat	12 percent
Vegetable fat	10 percent
Cane or beet sugar	12 percent
Corn syrup solids	5 percent
Stabilizer	0.4 percent
Emulsifier	Optional
Vitamins	Optional
Flavor	Optional
Water	60.6 percent
Total	100.0 percent

A similar quality ice cream would contain 10 percent butterfat in place of the vegetable fat. A gallon of the liquid mix before freezing weighs approximately nine pounds. After freezing, with 100 percent overrun, a gallon of the frozen mellorine or a gallon of similar quality ice cream would weigh approximately four and one half pounds.

In the United States the sale of ice cream has gone from approximately 240 million gallons in 1936 to a peak of 714 million in 1946 and has gradually leveled off to about 560 to 600 million gallons. This does not include the production of iced milk, sherbets or low-fat soft ice creams such as are sold from counter freezers. The 600 million gallons of ice cream is equivalent to 270 to 300 million pounds of butterfat. This is equal to about 6 or 7 percent of all the cottonseed and soybean oil produced annually in this country.

If butterfat continues to be a high-priced fat—as it probably will because

producing fat through a cow is an expensive way to produce it—it is easily conceivable that the annual production of mellorine could reach an additional market equal to 30 to 50 percent of the annual production of ice cream. This would require 80 to 130 million pounds of vegetable fat, about 2 to 3 percent of the annual production of these oils.

If properly promoted and merchandised the ice cream manufacturers could hold or even increase their annual production of ice cream and the mellorine could all or nearly all be new business, especially with the rapid growth of our population. The production of ice cream from 1946 through 1952 was more than double what it was in 1936.

In the next 10 to 15 years the production of ice cream may not double, but the production of ice cream plus mellorine could easily double making a total of 1,200 million gallons. To do this, many of the barriers against the production of mellorine will have to be removed.

Dairymen Opposed

As would be expected, the dairy producers' groups are trying to prohibit the manufacture and sale of mellorine, the same as they tried to do with margarine and on similar arguments.

There is no federal standard of identity for mellorine and at present it cannot be shipped across state lines unless it is labelled imitation ice cream. There is some doubt if it can be shipped across even then.

Many states have standards of identity for ice cream which prohibit the manufacture and sale of mellorine. There are 10 states which permit the manufacture of mellorine. Texas issued a health department regulation and standard of identity for mellorine Oct. 1, 1951; Oklahoma health department issued a regulation on Sept. 14, 1952, then passed a legislative bill setting a standard of identity for mellorine effective June 15, 1953. Arkansas passed a bill on mellorine, effective date June 1, 1953; Alabama has passed a mellorine bill effective date Oct. 1, 1953.

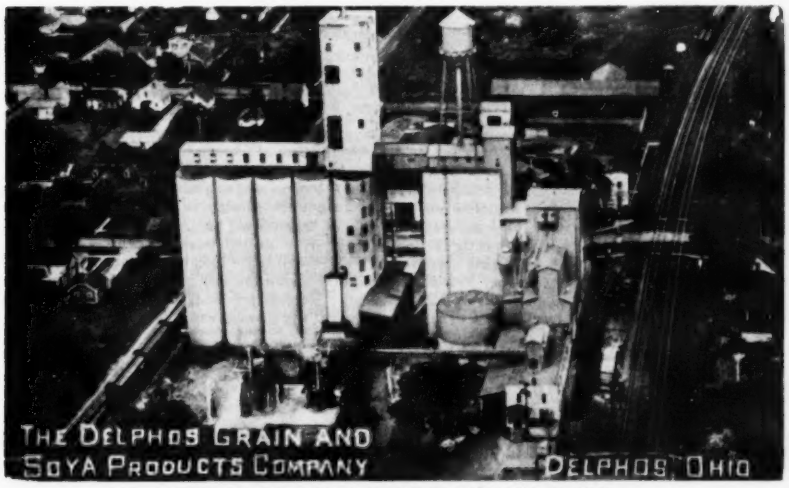
Missouri laws do not prohibit the manufacture of mellorine, but there was quite a fight in the legislature this year to try to get a bill through to prohibit mellorine and filled milk products. It failed. Illinois law does not prohibit the manufacture of mellorine, but a legislative bill was passed this year putting some restrictions on the manufacture of frozen desserts. It did not set up a standard of identity as did Oklahoma, Arkansas and Alabama. California, Oregon, Montana and South Dakota are the other states where mellorine can be made.

The barriers committee of the National Cotton Council did an excellent job in guiding the bills through the legislature in Oklahoma, Arkansas and Alabama. They were potent factors in Missouri and California in preventing prohibitive legislation. They are working in all the cottonseed-oil-producing states trying to get barriers removed and standards of identity for good quality mellorine. Louisiana is seriously considering mellorine regulations.

Mellorine offers a large potential market for soybean oil. There is no evidence that it will hurt the market for ice cream.

In Illinois the American Soybean Association was active in trying to get the proposed legislation either killed or modified to give mellorine a better break. They were partially successful. They were successful in getting a bill killed which would have required a "tracer" in any fat other than butterfat which a dairy or ice cream plant had in their possession. This was a very dangerous bill. A similar type bill was killed in California. These bills in Illinois were introduced by the dairy groups and almost slipped through before those interested in frozen desserts knew they were even being considered.

There are many states where the Cotton Council does not work in which ice cream production is very high and a lot of mellorine would be made if it were not prohib-



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ited. Many of these states are large producers of soybeans. We need active and well-organized work in these states to get standards of identity set up by legislation as has been done in Arkansas, Oklahoma and Alabama.

There is a general feeling in many states where mellorine is prohibited that fats other than butterfats are being used in ice cream. It's like bootlegging whiskey. If it is prohibited there is lots of trouble. If it's not prohibited there is no real incentive to bootleg. It has been obvious that where standards of identity have been set up for mellorine, there is little tendency to use other fats in ice cream.

No Mellorine Group

With margarine, we had the margarine association work on state and federal legislation to obtain favorable laws. With mellorine we have no such group in the industry. The ice cream manufacturers are also the mellorine manufacturers in most cases, so they are tied very closely to the dairy group. The ice cream manufacturers do not want to lose the mellorine business to someone outside their own group, like margarine was lost by the butter manufacturers. Even so, there is not an organized group of ice cream or mellorine manufacturers to go ahead with the obtaining of favorable legislation.

Where does that leave us? It's up to the American Soybean Association to lead the way in the states where soybeans are grown. The Cotton Council group will probably be glad to cooperate and both groups should work on the states where neither cotton nor soybeans are produced. It will probably be necessary to get 20 to 30 states permitting mellorine before the U. S. Food and Drug Administration will seriously consider federal standards of identity for mellorine.

How should we go about getting this legislation? First, we should have a definite idea of what we want. We want to set the standard of identity for mellorine on a high-quality basis so that its sale won't be killed or impaired because of poor quality. If the standards are too low and low-quality mellorine is made, the consumer acceptance would be low and the sales could dwindle down to nothing.

On an equal formula basis, mellorine cannot be distinguished from ice cream in flavor and eating qualities except by people specialized in testing and many of them have difficulty in telling the difference. Experience indicates that the mellorine should contain a minimum of 10 percent fat and should be fortified with vitamin A to give it equal nutritive value to that of ice cream. The Arkansas and Alabama standards are on this basis and could be used as models for bills in other states. In Texas and Oklahoma a minimum of 6 percent fat is allowed and vitamins are optional. Some believe the minimum should be this low. However, many have tried 6 percent and 8 percent fat and now have gone to 10 percent fat for better quality and greater consumer acceptance.

The International Association of Ice Cream Manufacturers standards committee worked out a suggested model standard of identity for mellorine which is fine and could also be used as a model. So, you see, we do have something to start with.

The next thing we need is information on what is happening where mellorine is being sold. The record of Texas, Oklahoma, Missouri and Illinois for 1952 will supply this information.

The United States Department of Agriculture, Bureau of Agricultural Economics, just published figures on production of mellorine-type frozen desserts for 1952.

PRODUCTION IN 1952
(Thousands of Gallons)

	Estimated* Ice Cream	Mellorine	Ice Cream Plus Mellorine	Average Ice Cream* 1949-50-51
Texas	22,705	6,319	29,024	23,576
Oklahoma	7,205	452	7,657	6,330
Missouri	15,805	1,780	17,585	16,148
Illinois	31,180	2,457	33,637	32,874
	76,895	11,008	87,903	78,928

*Figures from International Association of Ice Cream Manufacturers Special Bulletin No. 85, May 1953.

These figures show definitely that in the four states where mellorine was permitted in 1952, that the total gallonage of mellorine plus ice cream was for the four states 11.4 percent greater than the average ice cream production for 1949-50-51. Texas showed the biggest increase, 23.1 percent. The actual reduction in gallonage of ice cream in 1952 from the previous three-year average was only 2.6 percent which is well within the normal variation from the average.

It must be remembered that Texas was the only state with a few years' experience in mellorine and the only one that had a standard of identity set in October 1951. Oklahoma didn't issue a standard until September 1952 and a legislative standard until June 1953, so Oklahoma didn't have anywhere near a full year of mellorine production in 1952.

The issue was not clear cut in Illinois and Missouri in 1952 and many who wanted to make mellorine were just waiting to see what was going to happen. It wasn't until May or June of 1952 that any significant quantity of mellorine was made in either Illinois or Missouri.

Let's look at ice cream production in the country as a whole.

ICE CREAM TOTAL PRODUCTION IN THE UNITED STATES
(Thousands of Gallons)

1949	557,929
1950	584,351
1951	568,704
Ave. for 3 yrs.	560,328
1952	588,750

The production of ice cream alone in 1952 was 5 percent greater than the average for 1949, 50 and 51.

Total production of ice cream plus mellorine in the United States in 1952 was in thousands of gallons.

Ice Cream	588,750
Mellorine	11,008
Total	599,758

or 7 percent over average ice cream production in 1949, 50, and 51.

If the total production of ice cream plus mellorine in the United States as a whole had been the same as Texas for 1952, namely 23.1 percent over the 1949, 50, and 51 average, we would have produced 689,203 thousands of gallons or a total of 100,453 thousand gallons more than of ice cream alone produced in 1952. If ice cream held its own as it has come close to doing in Texas, and the increase were all due to mellorine, it would be equivalent to approximately 45 million pounds of fat such as soybean and cottonseed oil. This is a possibility already shown. As mellorine gains wider consumer acceptance, and if properly promoted, this figure could easily be doubled or tripled.

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What Will We Get for 1953-Crop Soybeans?

By G. L. JORDAN

Professor, Department of Agricultural Economics, College of Agriculture, University of Illinois, Urbana, Ill.

NUMEROUS FORCES operate to determine the price of soybeans. Forecasting is based on an assumption that those forces will influence prices in the future approximately as they have in the past. Errors in forecasting are caused by: (1) omitting consideration of important price-making forces; (2) assuming an erroneous measure of effects of some price-making forces; or (3) inability to guess the future value or intensity of price-making forces, i.e., an erroneous guess of the future size of demand or supply or both.

Last year the following developments took place after the September Purdue conference of the American Soybean Association:

1—Government estimates of production of soybeans, cotton and corn were all raised substantially.

2—Exports of fats and oils declined drastically.

3—Hog numbers continued their decline.

4—The Korean developments led to less fear of inflation.

5—Definite steps were taken by the U. S. government to check inflation in this country.

6—Foreign countries increased output and took steps to try to check inflation.

7—Crop prospects for 1953 are good.

All of these items represented increases in supplies of fats and oils or feeds or decreases in foreign demand. The domestic demand remained at a high level. If I could have foreseen those developments the forecasted average annual price of soybeans, meal and oil would have been lower last September. I do not claim any better foresight now than I had last September, but I am giving you my best estimate and the bases for that estimate.

1953 Crop Estimate

My estimate of the average annual price of soybeans to Illinois farmers for the 12 months October 1953 through September 1954 is $2.40 to $2.50 per bushel. This is based on an estimate of an average price of $75 to $80 per ton for bagged meal at Chicago, or $62 to $67 per ton for bulk soybean meal at Decatur, 11½ to 12 cents per pound for crude soybean oil at Midwestern mills, and a marketing and processing margin of approximately 60 cents a bushel (using Chicago meal prices).

I expect soybean prices to be below the loan rate at harvest time and that substantial quantities will be placed in storage under government loan. I expect a relatively low price at harvest time and for some rise in price as the season progresses. What happens later in the season will depend on whether a depression hits us and on crop prospects during July, August and September 1954.

The prewar seasonal price movement was about as follows in percentage of the crop year average price:

Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
82	89	96	102	103	107	110	115	114	105	90	87

Since the war farmers have retained possession of and stored a larger fraction of their beans at harvest time so that the October price has risen as a percentage of the annual average. If there is no substantial change in domestic or foreign demand or threat of crop failure during the year I would expect something like the following seasonal pattern to develop in 1953-54:

Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
88	94	98	102	102	105	108	108	106	104	95	90

However, I am considerably concerned about the possibility of a depression in 1954. A depression in the United States would reduce domestic demand. Foreign demand for soybeans and products probably would suffer more than domestic demand. Foreign countries would be unable to acquire dollars to buy any but the most urgently needed items. Those would not be fats and oils or meals.

In the case of a depression the above seasonal index would fluctuate around a downward movement and there probably would be no rise in price after the reduction in demand began. The declines would be more drastic.

My reasons for being so pessimistic are:

1—The extent to which consumers have mortgaged their future incomes.

2—The high level of certain kinds of inventories coupled with extremely large production capacity.

3—Efforts to check inflation in the U.S. and abroad, and

4—The reduction that has already occurred in farmers' buying power.

None of the above is sure to cause a depression but we cannot be sure that an increase in construction, or foreign purchases, or an expanding new industry (like television) will fill gaps caused by weakness in the farm machinery industry, military purchases, excessive inventories, or weakness in some other phase of our economy.

Not all economists are so pessimistic as I am. It is true that government spending will remain heavy. We shall be running a deficit but not creating much, if any, new money. We are saving a larger fraction of our income and will loan it to the government. The government will spend it but we will thereby reduce our spending below our incomes. Of course, a new outbreak of war would change the picture entirely.

Many Cornbelt farmers can protect themselves by placing their soybeans under government loan. To me that would seem the logical thing to do for all farmers who can find storage at a reasonable cost.

For several years speculators have made money by buying soybeans. This year they did not do so. This year oil and meal users have profited by buying supplies only when they needed them. Unless prices get very low at harvest time they probably will follow the same procedure this year. The declining phase of price cycles does not turn abruptly except in case of war.

The bright spots in the picture are the likelihood of increasing hog numbers next spring and the favorable livestock-feed ratios.

The factors used in making my estimate of soybean prices for 1953-54 are the same as in previous years with the exception that the relationships have been reviewed and more attention has been given to exports and a change was made in the method of estimating marketing and processing margins. The factors used to esti-

mate soybean meal prices were estimates for 1953-54 of:

1—Personal consumption expenditures.

2—Supplies of high-protein supplements with most emphasis placed on the supply per hog and poultry animal unit.

3—Supplies of corn per grain-consuming animal unit (except horses and mules).

Oil price estimates were based on estimates for 1953-54 of:

1—Personal consumption expenditures.

2—Supplies of soybean oil, cottonseed oil, and butter, and

3—Supplies of lard.

Then from the value of the oil and meal in a bushel of beans was deducted an estimated margin. This margin was determined as a fraction of the 1952-53 calculated margin. The relationship to the previous year was determined by a recent average relationship between margins and: (1) the value of meal and oil as percentage of the value of meal and oil the previous year; and (2) the relationship of the previous year's margin to the recent average margin.

The general relationships developed were as follows:

Soybean meal:

1—Soybean meal prices are the same as the weighted composite price of all high-protein supplements.

2—Soybean meal prices will rise (or fall) 1.3 percent with a rise (or fall) of 1 percent in personal consumption expenditures, other factors remaining constant.

3—Soybean meal prices will rise (or fall) .9 percent with a fall (or rise) of 1 percent in supplies of protein supplements per animal unit of hogs and poultry combined.

4—Soybean meal rices will rise (or fall) .5 percent with a fall (or rise) of 1 percent in supplies of corn per grain-consuming animal unit.

Soybean oil:

1—Soybean oil prices are 50 percent of the weighted composite price of soybean oil, cottonseed oil, and butter.

2—The composite price of those three food fats and oils will rise (or fall) 1 percent with a rise (or fall) of 1 percent in personal consumption expenditures.

3—The composite price of three fats and oils will rise (or fall) 1.9 percent with a fall (or rise) of 1 percent in supplies of the three fats and oils.

4—The composite price of the three fats and oils will rise (or fall) .5 percent with a fall (or rise) of 1 percent in supplies of lard.

The marketing and processing margin:

1—The marketing and processing margin referred to is the difference between the value of the meal (Chicago prices) and oil combined in a bushel of beans and the price paid to Illinois farmers for the beans.

2—The margin tends to be the same margin as the previous years plus a percentage of the previous year's margin equal to .7 of the amount that the value of the beans and oil exceeded the value the previous year minus .5 of the amount that the previous year's margin exceeded the average margin for the years 1947-48 through 1952-53. The margin would change in the opposite direction from the previous year for opposite changes in the two factors used. The margins calculated by this method were too low in 1951-52 and 1952-53 and too high in the preceding three years. I would guess that they will not be much lower than calculated for 1953-54.

Data for 1953-54

The data used for the 1953-54 estimate include the following:

1—Personal consumption expenditures —$220 billion, a little under the 1952-53 figure used.

2—Soybean production — 295,018,000 bushels—August estimates. Cotton production—14,605,000 bales—August estimates. Flaxseed production — 42,204,000 bushels —August estimates. Corn production—3,330,418,000 bushels—August estimates.

3—Hogs fed (in animal units)—59,277,000—based on 55 percent of 1953 spring pig crop, 100 percent of the fall crop, and 45 percent of the estimated 1954 spring pig crop. Poultry numbers—48,994,000 animal units.

4—Fats and oils supplies—6,386.6 million pounds after deducting estimated exports of oils but not of soybeans.

None of the estimates of sizes of the factors affecting price is likely to be correct, but adjustments in estimates can be made on the assumption that changes in the Illinois farm price of soybeans would be associated with given changes in the sizes of the factors affecting price according to the formulas used in our calculations as follows (assuming a change in one factor only, the other factors agreeing with the values used in the forecast):

1—An increase (or decrease) of 5 percent in personal consumption expenditures would suggest a rise (or fall) of 18 to 20 cents in the price of soybeans.

2—An increase (or decrease) of 10 percent in personal consumption expenditures would suggest a rise (or fall) of 40 to 42 cents a bushel in the Illinois farm price of soybeans. This indicates how much a serious depression would lower soybean prices. There is nothing in the picture to suggest much of a rise in domestic demand. In my forecast of $2.40 to $2.50 a bushel for 1953-54 I assume a drop of between $5 and $10 billion in personal consumption expenditures, which may not happen.

Prices will be below support at harvest, will rise to peak in April or May barring war or depression.

3—An increase of 5 million bushels in soybean production above the August estimate of 295 million bushels would suggest a reduction of only about 3 cents a bushel if there were no changes in other factors. A rise of 10 million bushels would suggest a reduction in price of about 6 cents.

4—A rise (or fall) in cotton production of half a million bales from the August estimate would suggest a 3-cent fall (or rise) in soybean prices.

5—A rise (or fall) of corn supply of 100 million bushels from the August estimate would suggest a fall (or rise) of 3 cents in soybean prices.

I believe that my forecast is conservative. It has taken into consideration the large carry-over of fats and oils, corn, and soybeans. It assumes a decline in consumer's expenditures which may not occur. The price could easily be 10 cents above my estimate.

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Population, Land And Resource Prospects

By DR. BYRON T. SHAW
Administrator, Agricultural Research Administration, U. S. Department of Agriculture

AGRICULTURE faces a tremendous job in the next 25 years. Our population is now growing at the rate of 2½ million a year, and the Census Bureau estimates that by 1975, under moderately favorable conditions, it will reach 190 million. This means that American farmers will have to produce about 30 percent more by 1975 if they are to provide adequately for all our people.

A 30-percent increase would call for an extra billion bushels of corn, almost 3 billion pounds of beef, more than 1½ billion dozen eggs, nearly 4½ million bales of cotton, and 100 million bushels of soybeans. In terms of 1950 yields per acre and 1950 consumption rates of food and fiber, to produce these extra products we will need the equivalent of an additional 115 million acres of cropland.

Now I don't want to give the impression that an increase of this nature is impossible, or that people in this country will be hungry. Our people are eating better than they did before the war. Their desire will be to make further improvements in nutrition and diet. The problem is not to avert hunger, but to maintain our present diets and improve them if possible. This is a very real challenge to our agricultural efficiency.

In the past we have helped meet the needs of our growing population by bringing new land into cultivation. This was the pattern for more than a century as the settlers moved westward. By about 1920, however, most of the good lands had been taken. Since that time a large share of our additional cropland has come into food production because of its release from growing feed for horses and mules. Some small additions have also come from irrigation and land clearing. Between 1935 and 1950 we were able to add a net of 38 million acres of cropland equivalent for the production of food and fiber for domestic human consumption.

Because such a large portion of our food supplies comes through the route of livestock and poultry, it is not enough just to consider cropland by itself. We must take into account grazing land and pastures also. So when I speak of the number of acres available or needed for food production, I mean our present cropland plus the cropland equivalent of acreages that are now or may be used for livestock feed.

The application of science and technology also gave us a big increase in production between 1935 and 1950. That was enough to provide not only for the increase in population that took place during that time but also for the improvement in diet that we enjoy today.

What Are Possibilities?

Now, let us consider some of the possibilities envisioned for increasing our cropland acreage between now and 1975. Instead of 38 million acres released from producing feed for horses and mules that we got during the last 15 years, we can expect only about 15 million acres of land for production from this source by 1975. According to plans of the Bureau of Reclamation, the army engineers and the Department of Agriculture, we may bring an additional 30 million acres into full production by irrigation, drainage, clearing and flood control. These two items could give us 45 million acres of the 115 million that we are going to need. According to the best estimates that I can get, it looks as if we will be short somewhere in the neighborhood of 70 million acres in 1975.

How do we propose to make up this deficit? One way would be to import more or export fewer agricultural products. However, when we consider world conditions, the possibilities in this direction do not seem large.

Our greatest opportunity for making up this deficit is in better use of the land we already have. This assumes greater efficiency in production on farms and improved distribution, utilization, and marketing after the products leave the farm. We have already made great strides in this direction.

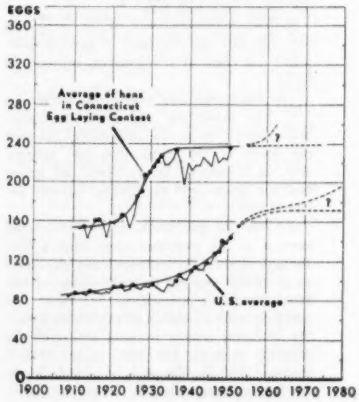
The soybean industry as we know it today became possible when machinery broke the labor bottleneck in harvesting, and plant breeders introduced new high-yielding, shatter-resistant varieties, and succeeded in lifting the bean pods higher on the plants to fit the combine. Improved crushing or extraction processes today recover almost all the oil in the bean. Such products of research and individual ingenuity have helped us to keep up with needs in the past. But we are not increasing efficiency fast enough for the future.

A simple way to size up the job and compare it with what we have done in the past is to look at it on a year-to-year basis. Science and technology currently are giving us the equivalent of about 5 million acres of cropland each year. But that is not enough. It takes about three acres of cropland equivalent to provide food and fiber for one person. Since we are growing at the rate of 2½ million people a year, we need to add the equivalent of 7½ million acres of cropland each year instead of 5 million.

In looking at the gains in the last 15 years, we should remember that they included hybrid corn, the use of nearly three times as much fertilizer, DDT and other new insecticides, new disease-resistant crop varieties, and more soil conservation. Another fact we must take into consideration is that as efficiency approaches high levels it becomes increasingly difficult to raise those levels still higher. It will be difficult, for example, to increase corn yields again as much as they were increased by the development of hybrid corn.

To get the increased production needed in 1975, we will have to eliminate many

EGG PRODUCTION PER LAYER



of the ravages of insects and diseases and develop still better crop varieties and livestock breeds. We are losing 10 percent of all farm animals from diseases and parasites. Insects still take a toll of 4 billion dollars worth of crops and livestock every year, and plant diseases threaten several of our major crops. Even in the soybean crop, diseases have become more serious in recent years. Stem canker, for example, already is causing a loss estimated at 4 million dollars a year in Iowa alone.

In addition to increasing production, we will have to find ways to improve the marketing, distribution, and utilization of our farm products. Estimates run from a half billion to more than a billion dollars damage to grain in storage each year.

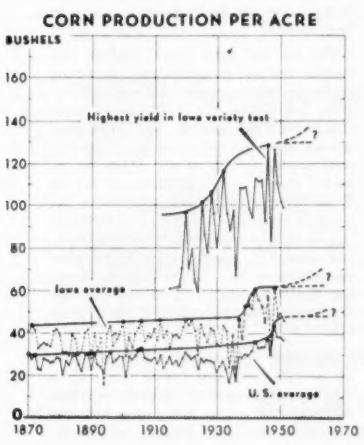
A lot of improvement can be made in the distribution of farm commodities. We need to know much more about transportation requirements and how to avoid glutted markets in one place and scarcity in another. And we certainly will have to cut down on waste in the household use of foods and other goods. When people waste much of the fat bought with meat, as they now do, they are in effect wasting the valuable feed grains and forage that went into producing it. When they throw into the garbage can uneaten food from their plates or leave food in the refrigerator until it is spoiled, they are increasing the need for additional acres.

Our big job then is to find a way to provide as much additional food and fiber as could normally be expected from 70 million acres of cropland and pastures. And since research and technology have brought us big gains in the past, it is only logical that we look to this source for continued gains in the future.

This brings up the question: Are we doing enough research to guarantee the answers that we must have if we are going to be able to produce the extra food and fiber that we will need?

Some time back I became interested in the relation between production on farms and production where all research knowledge is put to use, such as in experimental plots. So I decided to make a study of some of the major farm commodities. I started with eggs. I compared production on farms with that in the Connecticut Egg Laying Contest at the State Experiment Station. In this contest hens are entered from all over the country with the main objective of breaking egg-laying records. In studying the records of the contest I found that there was a sharp rise in egg production between 1920 and 1935 and that since 1935 the production records have leveled off. It looks as though we may have hit a ceiling in egg production where all known facts are utilized.

Egg production on farms, on the other hand, has been rising rather rapidly for the last 15 or 20 years. It is fairly certain that this rise is a delayed response to the advance of knowledge between 1920 and 1935. Since 1935, however, we have used a lot of our research knowledge reserve, and research has not been adding new information as fast as it is being used. This means that average production on farms is not going to continue to rise at current rates for very long unless the research ceiling on egg production is again raised.



A Look at Corn

Now, in case you may feel that egg production per hen is unique, let's take another farm commodity. Since corn is one of the farm crops most widely used in industry, I think you will be interested in the relationship I found in the average corn production on farms and in the Iowa Corn Variety Test, which represents rather full application of research knowledge. The yields in the Variety Test began going up rather sharply with the advent of hybrid corn, but have leveled off in recent years. The Iowa average lagged several years behind, as would be expected, and began its sharp rise about 1934 as hybrids were adopted more and more widely. This rise has now leveled off. U. S. average yields have not yet reached their peak, but we are pretty safe in assuming that our average corn yields will not go much higher unless we have a further rise in the research ceiling.

The relationships in egg production and corn production are typical of what I found in studying several of the major farm commodities such as wheat, cotton, potatoes, hogs and dairy cattle. Except for potatoes, the research ceiling for all these commodities is now at or rapidly approaching the stage where opposing forces such as insects, diseases, soil deterioration, etc., are pushing down as hard as research is pushing up. The average producer's ceiling is still rising for most commodities, but we can expect a leveling off unless the research ceiling is again lifted.

The record of past accomplishment shows that research is our best bet in meeting future demands for agricultural products.

The history of the soybean crop is a shining example of what research can do in supporting the enterprise of American farmers. Only a generation ago the soybean was virtually unknown on most farms. Today it occupies a large and permanent place in our agriculture.

Population growth in the next 25 years will demand an increase of 30 percent in agricultural production. More research appears the most promising tool to bring this about.

And right here we might take a closer look at the research story as it pertains to soybeans. The job that has been done, and the job that still needs doing, illustrate to a fair degree the situation with respect to other agricultural commodities.

Joint research, with the Department of Agriculture and the experiment stations of 27 soybean-producing states working together, during the last 12 years has produced a new superior variety for every one of the various producing areas. As you know, the average oil content per bushel of beans has increased by one and one-half pounds, and the acre yield by about five bushels.

The two most recently developed varieties—Clark for part of the Cornbelt and Jackson for the Southwest—were announced only a few weeks ago. It is expected that seed for planting will be available generally to farmers by the spring of 1955.

Higher production per acre is definitely an important way to increase agricultural efficiency from the land that is available. But with the prospective demands on agriculture, it is becoming clear that this excellent breeding record in soybeans must be surpassed.

The challenge to research is sharp. It has taken a lot of pushing to raise agricultural production to the point it now holds. It takes a lot of push just to maintain that level, and that job now is taking most of our research strength. If we are to move forward to take advantage of the potentials that lie in science, we must have additional strength before we can do the job.

We will need still better varieties that can give a higher bean yield—varieties that resist lodging and are immune from or resistant to diseases. Not only stem canker, but also frog-eye leaf spot, brown spot, and brown stem rot are taking a steadily larger toll of our production.

We need to put part of our research effort into the fight against insects. White grubs, grasshoppers, caterpillars and beetles of various kinds are becoming serious pests in many localities.

We need more basic information on the physiology of the soybean, its cultural needs, how resistance to diseases can be inherited, and the effects of environment. Basic research supplies the principles on which such progress is based.

I'm sure it makes little difference in

farming whether beans on the tip of the plant have more or less oil than beans growing on the lower half of the plant. But scientists have noted that oil content may vary as much as 3 or 4 percent between beans, depending on what part of the plant they were growing, the variety of soybean, and perhaps its flowering habit.

The studies are showing that there is a definite pattern. Elemental information of this kind may very well make it possible for breeders to increase the oil content of new varieties in the future.

Providing for a greater population is not just producing more; it is also a job of making greater use of the products after they are produced. While I have stressed production in this evaluation of what the future holds in store, we must also increase the utilization of byproducts and eliminate waste and spoilage.

We must take into account fluctuating shortages and surpluses that occur in agriculture. The hard fact of surpluses in some farm commodities today does not alter the need for research. Rather, surpluses accent this need.

The number one research problem to be solved in helping find new markets or expand old ones for soybean oil is this: How can we stabilize the flavor? We won't find the answers we need, I'm afraid, without more fundamental or basic studies on chemical reactions to disclose the principles which will give us a way to stop reversion in the flavor of the oil.

We know that linolenic acid is in large part responsible, but so far haven't found a completely feasible method of removing that part which causes the undesirable flavors and odors. Recent work on several possible methods have given some clues, and in theory at least, it is possible to remove this major cause of reversion. We need to translate the theory into practice —but it won't be done without considerable research.

When this riddle is solved, use of soybean oil and soybean oil shortening can be widened and expanded.

Other research is pointing to still other new uses for soybean products. Recent tests give encouragement that there is a place for soy flour with wheat flour in bread. Other studies show that Gelsoy, a product of soybean processing, may have special value for use with sausage-type meats, and with frozen confections.

Industrial Usages

Soybean potentials for industrial use continue to grow. When chemists recently found a way to make soybean protein soluble in water without the use of alkali, they opened the way for its eventual use in synthetic rubber emulsion paints and in waxes, textiles, paper coatings, and sprays.

Processing research is now being carried on which may in time give us a way to use trichloroethylene as a solvent for the extraction of oil by isolating and removing the factor that makes soybean oil meal produced by this process toxic to livestock. We have just made a start, but with several state experiment stations making major contributions, we hope to find an answer.

I feel sure that this brief spotlight on the Department's soybean research shows a real contribution to the rapid growth of this industry. Considerable research progress is being made now with the available funds, but some of our biggest problems still are unsolved. And we must solve them to meet the needs of today as well as those of 1975.

The job we have ahead involves preventing declines in production, increasing production wherever possible, cutting down waste and spoilage in goods during handling, marketing, and in the home, and making improved utilization of all agricultural products. This is not a job for research people alone. It is a job for all of us. That means those responsible for research, extension, teaching, and legislation. It most surely means those who farm, and those who process or distribute commodities from the farms. And it means, too, the housewives and others who are the buyers and consumers of these products.

Agriculture faces a tremendous job in the next 25 years. But I want to say again that I'm not pessimistic about the outcome. Although the job is a big one, I'm convinced the people of America will do it.

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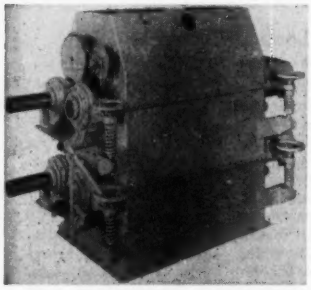

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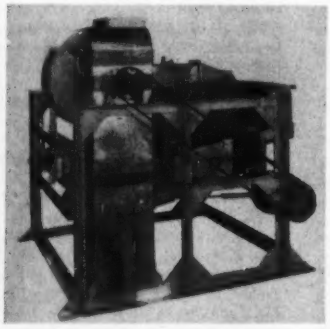

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Canada as a Continuing Market for Soybeans

By IVAN ROBERTS
Agronomist, Victory Mills, Ltd.

THE SUBJECT, "Canada as a continuing market for soybeans," is a peculiar one to give to an agronomist. It is my particular job to increase our soybean acreage to the point of self-sufficiency. Imports of soybeans directly reflect my inefficiency. Therefore you would not expect that I should point up a rosy future of increasing importations of soybeans into Canada.

The picture past and present is indicated in the table below:

Year	Production of Soybean Oil (1,000 pounds)	Importations of Soybean Oil (1,000 pounds)	Whole Soybeans Imported (bu.)	Canadian Soybean Production (bu.)	Oilcake Meal Imported (cwt.)
48	26,864	5,898	1,445,000	1,824,000	47,341
49	45,963	10,399	2,142,000	2,605,000	594,396
50	56,931	8,601	4,004,000	3,323,000	349,605
51	73,513	19,229	4,659,000	3,843,000	653,724
52	80,176	15,680	4,680,000	4,128,000	328,579

While we speak in reasonably small quantities, Canada has been one of your largest buyers over the past few years. Our imports of whole soybeans from the United States increased from 1,245,000 bushels in 1948 to 4,004,000 bushels in 1950 and remained between 4 to 5 million bushels in 1951 and 1952, where I predict it will also be in 1953. Our own Canadian production, plus imported soybeans, reflect processed soybeans, and, of course, the production of soybean oil. Production of soybean oil plus imported soybean oil would indicate a domestic consumption in 1951, 1952, and likely in 1953, of about 10 million bushels of which approximately 6 million have been imported from the U. S. in the form of whole soybeans or oil.

Our own soybean production from 1,824,000 bushels in 1948 to 4,128,000 bushels in 1952 has more than doubled. An estimate of 5 million for 1953 could be on the light side.

A simple graph would indicate a rapid rise in consumption, much more rapid than our acreage increase, until 1951 where the graph levels off. Where does the graph point from here? If our domestic market for soybean utilization should remain in the vicinity of 10 million bushels, as it has for the last three years, then our increasing home production will force imports down. At the moment we are producing one-half of domestic requirements, in 1949 we were only one-third self-sufficient.

It is normal to expect that the market for the products of the soybean will increase. Our Canadian industrial expansion and our program of encouraging immigration is boosting our population at the rate of 4 percent per year. We are suffering from Dairy-itis with regard to margarine. The province of Quebec completely prohibits its manufacture or sale and through ridiculous legislation the government has the power to seize and confiscate not only the margarine but also the vehicle it is carried in, whether it be a truck or a train. The province of Quebec contains within its boundaries almost one-third of the population of Canada. Only in two provinces, British Columbia and Newfoundland, is margarine allowed to be colored as butter is colored.

Bad Legislation

This year, in the province of Ontario, and in most other provinces, the dairy group set about putting the butterfat back into cream puffs. They did—legislation was passed to prohibit the manufacture or sale of any edible oil product, other than margarine, that contains any fat or oil other than that of milk, which has been blended or mixed with a dairy product in such a manner that the resultant edible oil product is an imitation of, or resembles, any dairy product.

At that we were lucky. The original bill which was defeated by the efforts of the Institute of Edible Oil Foods would have given the government power, by Order in Council, to prohibit the manufacture of any edible oil product, e.g., margarine, peanut butter, etc. Such restrictive legislation is certainly not desired by the majority of the consuming public.

These are stop gaps or barriers to an increasing soybean market at the moment, but without doubt will be lifted in the not too distant future as your experiences would indicate. All these point to a larger potential, a larger consumption of soybean oil in the future, provided of course the price structure remains relative. However, the movement will be slow and I doubt if the demand will rise as rapidly as our increase in soybean acreage.

U. S. Tariffs

While those in the vegetable oil business appreciate the problems respecting oils and fats with which the United States government is faced, Canadians generally do not see this side of the picture, but do learn with growing apprehension the increase in restrictive tariffs and embargoes placed on Canadian goods. As Canada is probably the largest hard currency and cash paying customer of the United States, it would seem only good business sense to see that impediments to a two-way trade are removed rather than placed in the way.

Western Canada, because of long freight hauls from the East, is a large buyer of United States soybean meal, and in eastern Canada, sales are from time to time made into the New England market. While soy meal enters Canada duty free, your government saw fit to double the rate of duty into the United States—from $3 a ton to $6, about a year and a half ago. While all U. S. governmental departments willingly agree that this tariff boost is grossly unfair, there appears to be no one willing to adjust or correct it.

This inequality, combined with excessive rates of duty and complete embargoes on vegetable oils, means that Canada must be constantly on the search for other markets, a great number of which are, of course, already blocked off from us by currency regulations.

Should this trend of action by the United States continue, Canada may be forced into seeking reprisal tariffs, along with the possibility of trading in other than hard currency areas. If the latter should eventually come to pass, it will of course result in the necessity of buying crushing stocks also from soft currency areas. While this situation, we hope, will not come about, you here today will appreciate that recent moves by your government leave us no alternative than to consider these possibilities.

Canada has maintained an open market for vegetable oils, the largest portion of which come from the United States, but

of late, offerings and sales have been made from several parts of the world and some of these oils are quite cheap by our standard of prices, and are finding a ready outlet in margarine and shortening. While these off-shore purchases haven't loomed too large yet, and our buyers are generally very cautious on large scale off-shore materials, nevertheless they are being made and are reflecting in a lesser demand for such standard oils as soybean and cottonseed. The net result will be to reflect heavily on the price the crusher in Canada can afford to pay for soybeans.

One other point I should like to leave with you is the fact that to our knowledge the quality of the U. S. soybeans coming to Canada has been, and remains, relatively high. Certainly we do not experience the trouble that the overseas buyers have complained of in buying U. S. soybeans.

Our soybean production is of vital interest to you, because as already indicated, as it increases or increases more rapidly than our domestic market for soybean products, it will directly reduce imports from the U. S. The miraculous story of soybean development in Ontario is as distinguished and phenomenal as yours—from a very few thousand bushels in 1942, to an expected 5 million this year.

At the present time 80 percent of this production in confined to the counties of Essex and Kent, in the southwestern portion of Ontario. The concentration of soybeans in these counties is something to see. Last year over 20 percent of all cleared land in Essex County was seeded to soybeans. Soybeans surpassed corn as the major county crop.

While the crop has probably reached its limits in these two counties, there is an expansive area to the east and north where the further development will take place. We might leave an impression of the soybean potential in Ontario by stating that there is a further area of five times the size of Essex and Kent Counties or 3½ million acres of cleared land which could be classified as very favorable for soybeans and where varieties from Lincoln to Hawkeye maturity could be seeded.

North of this, a further area of 2 million acres classified as favorable and where Blackhawk and Capital may be matured, and north again an area of 3 million acres of Capital and Flambeau type. In these latter areas, however, which have more a mixed farming than cash farming type of enterprise, the same concentration would never occur as in Essex and Kent Counties. In this same area we produced last year 20 million bushels of winter wheat. I feel that eventually soybeans will be accepted in these mixed farming areas as a cash crop in the same role as winter wheat and that the soybean potential in Ontario 10 years from now is in the vicinity of 20 million bushels.

Expected soybean crop in Canada this year is 5 million bushels, but this is only a fourth of the potential Canadian production.

In spite of the fact that we are not as favorably located geographically and hence climatically as your major producing soybean areas like Iowa and Illinois, our average yields compare quite favorably. In 1952, the average yield for Ontario was 24 bushels per acre as compared to 20.7 for the U. S. The average yield in the county of Kent was 27.3 bushels as compared to the state of Iowa with 25.5 bushels.

Several years ago we were dependent on American soybean varieties and are indeed indebted to your soybean plant breeders. Lincoln and Earlyana came in and filled a very important gap in the early phase of our soybean production. Later Hawkeye and more recently Blackhawk have been a worthwhile addition to the list.

Canadian Varieties

Our own plant breeders have done excellent work in a very short period of time, and have now provided us with a complete range of adapted varieties—Harman replaced a large acreage of Lincoln as an earlier better adapted variety. Capital, from Ottawa, an early variety, extended the boundaries of production.

The new variety Harosoy, with its resistance to stem canker, high yielding ability and wide area of adaptation is possibly the best thing that ever happened to the industry. This year, three new varieties, Acme, Hardome and Comet, of Capital maturity should speed up production east and north.

Our cultural practices for the most part are similar to yours. We stress fertility, inoculation, and "timely" weed control. There is, however, one phase which differs and would be very noticeable were you to drive through our soybean area. Our row plantings are almost 100 percent 24 inches or less.

We recommend the narrowest row that can be handled with the available cultivating equipment. Time and time again data point up the benefits of narrow over wide rows not only in yields but also from the standpoint of competition against weeds. I feel the narrow rows are largely responsible for the high average yields.

However, the narrow row has fitted into our enterprise while not with yours. Corn is still your major crop and hence corn with the wider cultivating equipment is most convenient. Sugar beets and white beans were grown extensively before soybeans. The beet and bean equipment has fitted perfectly into our soybean production.

In conclusion I could summate that in general you will be exporting a considerable quantity of soybeans to Canada for some time, but it would appear that our own production is now advancing more rapidly than the increase in consumption of soybean products, and in the future will reduce your exports of soybeans to our country.

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JULY CORN was 1.70—low since 1.46½
JULY OATS were 81c—low since 68c

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Trades We Advised		Profits Taken at	Profit on Each 5,000 Bu. Lot
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SEPT. WHEAT short at	2.40	2.25½	725.00
SEPT. WHEAT short at	2.41	2.25½	775.00
MARCH WHEAT short at	2.32½	2.27½	250.00
MARCH WHEAT short at	2.26	2.14½	575.00
MARCH WHEAT short at	2.16	2.08½	375.00
MARCH WHEAT short at	2.17	2.08½	425.00
MARCH WHEAT short at	2.18	2.08½	475.00
TOTAL WHEAT PROFITS			$4,375.00
SEPT. BEANS short at	$2.73	2.65½	375.00
SEPT. BEANS short at	2.71	2.65½	275.00
JAN. BEANS short at	2.72	2.60½	575.00
JAN. BEANS short at	2.67½	2.60½	350.00
JAN. BEANS short at	2.66	2.60½	275.00
TOTAL SOYBEANS PROFITS			1,850.00

JULY CORN sold short at $1.59½—$1.60½ and $1.61½ yielded nice profits, with more profits coming!

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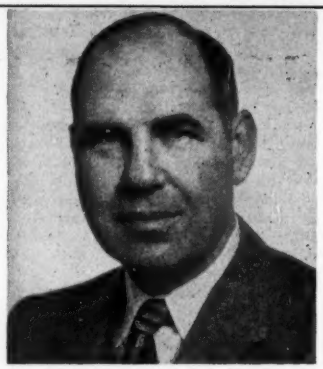
What Can We Expect from World Markets?



By PAUL E. QUINTUS

Head, Fats and Oils Division, International Commodities Branch, Foreign Agricultural Service, U. S. Department of Agriculture

SOYBEANS and soybean oil from the United States should continue to hold an important place in world markets. Basically, soybeans are an excellent export item. The potential volume of exports appears to be tremendous.

There are, however, a number of factors which have recently circumscribed the limits of our exports. For the current crop year we will be held to about 30 million bushels as beans, and perhaps the equivalent of another 10 million bushels as oil. If any of these limiting factors take a turn for the better, exports from the new crop should increase. In any case, we do not see any real likelihood of a downturn in respect to total export volume.

While we now have our most important market in Japan and Formosa, and a good, stable market in Canada, we must look to Western Europe for a consistently large volume of exports. Japan and the Far East are unnatural markets, based on international political events, and can be expected to disappear under our goal of lasting peace.

In the meantime, however, we must not forget that Japan has contributed heavily to our export market since the war. Peak soybean exports to Japan occurred in 1951. There have been decreases since, but we still have prospects of a good volume of business with Japan and Formosa from the new crop. And our soybeans may find a place in the rehabilitation of Korea.

The large potential market for soybeans in Western Europe follows from the fact that it is a great deficit area for vegetable oils for an expanding margarine industry, and it is also a large deficit area for oilcake and meal. Soybeans are well liked for both these purposes, and Europe has had a long history in the processing and use of soybean products. Moreover, the recently modernized oilseed crushing industry is greatly over-expanded in terms of the present raw materials available for processing. The millers consider soybeans ideal because they result in a large volume crushing relative to the oil produced. Therefore, we can count on a strong buying interest from this source.

Buying interest will not result in export sales, however, unless the European mills find it profitable to crush American soybeans. This point is so trite that it is frequently overlooked. In Europe, as an importing area, the value of the soybean oil depends directly on the world market for all fats and oils.

European margarine is made from whale and fish oils, coconut and palm oils, and a variety of interchangeable vegetable oils. Of these, soybean oil, sunflower seed oil, rapeseed oil, peanut oil, sesame seed oil and cottonseed oil are probably the most important. In a few countries, legislation requires the use of some domestic animal fats in margarine.

Vegetable oils are also used extensively as salad and cooking oils on a competitive basis, but the preference here frequently goes to peanut oil and olive oil.

Wide Competition

The area of price competition with soybean oil is thus very wide and very direct. Even our low-priced inedible tallow and greases which we are exporting to Europe in increasing quantities temper the value of soybean oil. The tallow goes into soap and releases palm oil for margarine and other edible products. This reduces the demand for soybean oil. If we go back a step further, we can see that the rapid development of synthetic detergents in this country and in Europe reduces the value of soybean oil in the international market.

But the main point here is that the value of soybean oil is not determined so much by the supply of soybeans as it is by the supply and demand for other fats and oils. The same reasoning applies to the soybean oil meal and cake in Europe.

There is also the question of the dollar shortage which is a real deterrent to trade. Too much emphasis on the dollar problem, however, tends to obscure the price factor which is equally, if not more important. Whenever the price of American soybeans permits crushing at a profit in Europe, dollar payments seem to be forthcoming. Conversely, if the processing would result in an operating loss, an abundance of free dollars would not result in an export sale.

There are several factors that point to a good level of soybean exports during the next crop year. In the first place, world supplies of fats and oils available for export have not increased outside the United States. Rather, there are several indications of decreases. Copra production and exports are down. Whale oil production will be off about 10 percent this year compared with 1952. Fish oil production is also down. Rapeseed production will be down sharply in many European countries. There appears to be a shortage of edible oils behind the iron curtain. And India has moved from limited exports to a complete embargo on shipments of peanuts and peanut oil. If fat rationing should end in the United Kingdom, some increase in demand could be expected. China remains an uncertain factor in world trade but there are reports to the effect that late frosts damaged oilseed crops, and that exports will be reduced for the next year or so.

There is also the fact that several importing countries have bought fats and oils sparingly for the past several months indicating that there have been no big stock accumulations to carry into the next crop year.

This has been partly due, it seems, to the large CCC holdings of cottonseed oil in the United States, and to the uncertainty in the world market as to disposition policies. Now that it has been clearly indicated that this surplus will be carefully managed in terms of the domestic and world markets, normal importing should be resumed.

In the case of soybeans, imports into Europe have been fairly low since 1951 so that the time should be right for increased purchases. Moreover, there are indications that the prices of American soybeans for November-December delivery are well in line with competitive world prices. As producers, however, you will want to note that these quotations for future delivery are below the support level.

In appraising the export market in terms of its potentialities and limitations, it is perhaps well to take time to give special attention to Western Germany. Here is by far the largest free market in

the world for fats and oils. Total imports are around 825,000 short tons annually, pure fat basis. If all requirements were met with soybean oil, Western Germany would need around 165 million bushels of soybeans. This, of course, is an unreal assumption but it serves as a measure of the tremendous size of the German market.

Imports into the United Kingdom are considerably larger—nearly twice as large—but these imports are covered largely by British possessions and long-term contracts within the Empire. Germany on the other hand buys every pound on the free competitive market around the world.

German Outlet

Against Germany, by far the largest free market importer, the United States stands by far as the largest free market exporter of fats and oils. It looks like a natural outlet for large quantities of soybeans and other United States fats and oils.

Yet, incomprehensible as it may seem, the United States does not figure heavily in Germany's import requirements. The recent trend seems to be away from the United States. Germany's huge requirements are being met by aggregating relatively small quantities from a large number of sources in all corners of the globe. During 1952, for example, only 7 percent of Germany's oilseed imports came from the United States. This was in the form of 1.3 million bushels of soybeans. A little less than 7 percent of her vegetable oil imports came from the United States, mainly in the form of some 23,000 tons of soybean oil. It doesn't look as if the situation will be any better in 1953 from our point of view.

The history of what happened is fairly clear. In the early post-war years, we shipped Germany large quantities of soybeans and other fats and oils as an aid to economic recovery. As industrial output expanded, Germany soon found that it could develop markets for its manufactured products by entering into trade agreements to export these products and to import things it needed, including fats and oils. This is Germany's official policy today: that is, to import most fats and oils through trade agreements and not use dollars. It is working so well, in fact, that the United States finds itself holding a sideline position.

Perhaps Germany's present arrangement has become so deep-rooted that we cannot hope to change its course of action. But I am sure we should try. There must be some way, at least over the somewhat longer run, that the two major traders should get together for large-scale transactions.

The issue is one of trade. A similar story applies to most of Western Europe, with variations only in degree. We can export soybeans or other items only to the extent that we import products or services from other countries.

There is one other aspect of the foreign market that I want to touch on for the purpose of this panel discussion. As I have pointed out, soybeans and soybean oil meet a great range of competition on the world market and the price relative to the price of other fats and oils is the key to exports at any point of time. But price to the buyer means price as related to quality and service. Where the fault lies may be the subject of a long discussion, but whatever the cause, it is safe to say that our soybeans have not won ardent friends in Europe or Japan. There are some who believe that damage already done has lost for us a large and dependable foreign market for soybeans that was handed to us on a silver platter at the war's end.

I am sure that we need not take such a dismal outlook, but unless we tailor our products to fit the customer, he will look elsewhere for his supplies.

Considerable improvement was noted this past year in respect to satisfying the buyers, said to be the result of federal appeal inspection on export shipments. A recent development was a resolution by the last Congress of the International Association of Seed Crushers requesting the Incorporated Oil Seed Association in London to draw up a form contract for American soybeans.

It is further reported that one seller has already agreed to handle American soybeans on I.O.S.A. terms, and that suitable amendments are being made to the Manchurian soybean contract form for this purpose. This may be an important turn of events and I am sure you will want to follow these developments closely through your Association.

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Agricultural Policies And Soybeans

By MARTIN SORKIN
Chief, Analysis and Statistics Division, Office of Requirements and Allocations, Production and Marketing Administration, U.S.D.A.

THE ENTIRE agricultural program is now under continuing review and decisions affecting one segment of the agricultural economy may have a profound effect on another. However, present agricultural legislation and current crop prospects give us some basis for appraising the situation affecting soybeans in the immediate future.

From the 1952 crop, 14 million bushels were placed under the price support program. On Aug. 10 only 3 million bushels were in CCC inventory. These soybeans have been offered for export at the market price on date of sale at place of delivery. For domestic sales the soybeans are being offered at market price but not less than the applicable loan rates at point of production, basis on track. It is anticipated that most of these will be exported and only negligible quantities of soybeans will still be owned by CCC at the start of the new season.

The 1953 soybean acreage set a new record of about 15.8 million acres of which over 14.3 million or nearly 91 percent is for harvest as beans. BAE has recently estimated 1953 production at about 295 million bushels. This is a near record crop, second only to the 1950 crop and 1 percent above the 1952 crop. The 1953 crop will be supported by means of loans and purchase agreements at a national average support price of $2.56 per bushel, or 90 percent of the Sept. 15, 1952, parity.

The Department has announced a 1953-crop cottonseed price support program to reflect 75 percent of the parity price. The announcement indicated that the support price was designed to place cottonseed products at a competitive level with the other oilseeds products in the market. By doing this it is expected that more of the cottonseed products which heretofore have been priced above competing products will flow into normal channels of trade, instead of being accumulated in government inventories. CCC has acquired from 1951 and 1952 crops, cottonseed oil amounting to over 1 billion pounds in terms of crude oil or about the oil equivalent of nearly 100 million bushels of soybeans.

Bear on Outlook

There are several factors other than these price support programs which will have a bearing on the soybean outlook for 1953-54. Historically, the U. S. has been a net importer of fats and oils. However, since the crops of 1948, exports have exceeded imports by more than 1 billion pounds, oil equivalent, annually. At the same time, stocks of edible fats and oils have been increasing. Stocks on Oct. 1, 1952, were 50 percent above the level of a year earlier and another increase of about 75 percent is expected by Oct. 1, 1953. This growth can be attributed almost entirely to increases or anticipated increases in stocks of butter and cottonseed oil acquired under price support programs. About 900 million pounds of this Oct. 1, 1953, carryover now estimated at 1.5 billion pounds may be considered as surplus.

It should also be noted that the domestic demand for edible fats and oils is relatively inelastic and therefore no significant increase in overall per capita consumption is to be expected in 1953-54.

Abundant production and the build-up of stocks have created storage problems. To meet these problems and to help farmers obtain announced support levels, the Department of Agriculture has announced that storage use guarantees will be made to responsible firms, to encourage the construction of additional commercial storage facilities for grains and oilseeds in areas where additional facilities are needed.

The guaranteed storage plan is a part of the overall grain and oilseeds storage program of the Department designed to make adequate storage available for the increased supplies of grain and oilseeds now in existence and which may continue large in the next few years.

Other phases of the storage program include loans to farmers to increase their "on farm" storage capacities, and the purchase of grain storage structures for commodities acquired by CCC.

In addition to action taken by the Department there is newly enacted federal legislation which permits taxpayers to make amortization deductions for grain storage facilities over a period of 60 months. This was done to encourage an increase in permanent type grain storage facilities such as elevators, bins, and public warehouses. The amortization deduction is available on grain storage facility construction, reconstruction, or erection completed after Dec. 31, 1952, and on or before Dec. 31, 1956.

One big question in the soybean outlook is: Will producers find or provide enough storage effectively to utilize the support program this year?

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Now let us look at the core of the farm problem of 1953. We are in a period when essential adjustments must be made following a total war plus a military emergency. We no longer have a situation, as we did during and immediately after the war, when there was a hungry demand for virtually anything that could be produced. As a result, we are in a period of increasing stocks and declining prices. At the same time farm costs are remaining high. This is resulting in a price-cost squeeze which is cutting into the net income of our farmers.

This farm price-cost squeeze is one of the most important economic facts which if permitted to grow more acute can and will affect the economic well-being of our entire nation. So that I may not be misunderstood, some price adjustment following an inflationary period was to be expected. The crux of the farm problem is not just that farm prices are tending downward, but that while this has been taking place, wages and industrial prices have remained high and in many instances are even rising.

Stability Important

It is important first to get through 1953 with reasonable price stability. Harvest is upon us and we must handle the 1953 crops with the facilities that are in existence now or can be brought into being this fall. In a real sense we must win the war for price stability and improved farm living in the long run. This we in the Department of Agriculture are trying to do.

As we move beyond 1953, we should take a look at the present legislation affecting soybeans and other crops which have both direct and indirect effects on soybeans. Soybeans are a non-basic crop under the definition of the Agricultural Act, and therefore support is not mandatory. They may be supported at from 0 to 90 percent of parity after considering these eight factors:

1—The supply of the commodity in relation to the demand therefor.

2—The price levels at which other commodities are being supported.

3—The availability of funds.

4—The perishability of the commodity.

5—The importance of the commodity to agriculture and the national economy.

6—The ability to dispose of stocks acquired through a price support operation.

7—The need for offsetting temporary losses of export markets.

8—The ability and willingness of producers to keep supplies in line with demand.

The Secretary may, under his present authority, require harvesting within an acreage allotment as a condition for price support for soybeans.

For each of the basic crops — corn, wheat, rice, peanuts, cotton and tobacco— support in 1954 is mandatory at 90 percent of parity except where producers have disapproved marketing quotas. The provisions of the Agricultural Act which authorize support prices of the basic commodities, other than tobacco, to be supported at from 75 to 90 percent do not become effective until 1955.

For 1954, the Secretary of Agriculture is faced with decisions on many problems which will have an effect on soybeans. By proclaiming marketing quotas he has called for a 20 percent reduction in wheat acreage for harvest in 1954 to keep an already huge wheat surplus from growing further. Farmers have voted 7 to 1 for marketing quotas for wheat. It appears that the Secretary must also ask for acreage allotments and marketing quotas on cotton which will reduce cotton acreage several million acres from the present 24.6 million acres. Corn acreage allotments in the commercial corn area appear inevitable. Feed and oil stocks are at or near record levels.

In the light of this background, what position should the Secretary take with regard to soybeans in 1954?

One problem is, to what crops will the acreage diverted from wheat, corn, and cotton in 1954 be planted? Soybeans can be produced in many of the areas where acreage reductions will be asked for under current legislation. In 1950, when cotton and corn allotments were last in effect the soybean acreage harvested increased over the previous year by 3.3 million acres.

It appears likely that, if substantially increased amounts of soybeans are produced, problems in disposition of supplies will be faced. Therefore, a series of alternatives for 1954 and future crops of soybeans should be under consideration by this group. Among these are the following:

1—Reduce the price support level or provide for a support based on the production of soybeans and other fats and oils.

2—Continue the present price support.

3—Remove price supports entirely.

4—Require compliance with individual farm acreage allotments as a condition for price support. This can be done regardless of the loan rate selected.

There have been some suggestions that marketing quotas for oilseeds be set up. However, this would require new legislation.

Each of these proposals has its advantages and disadvantages. No definite answers have been reached within the Department. What are your recommendations on these or any other possibilities?

Today, we are in a much better position to formulate farm policy and farm programs than we were 20 years ago. Then there was little experience to go by. Today, fortunately, the situation is different. We have a vast experience to work from.

Perhaps our toughest problems are to get through 1953 and 1954 successfully by getting started on certain necessary adjustments and provide agricultural price stability. Beyond 1954, we must develop a farm program which will enable us to use our abundance to improve the standard of living for all our people. With the help of groups like this, I am optimistic that we can get this job done.

I am sure that this group can make its contribution to national policy by a serious study of the many problems affecting agriculture and presentation to the Department of its recommendations.

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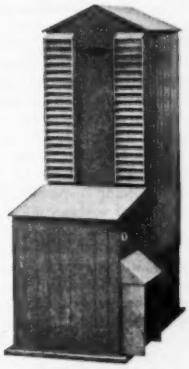

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Outlook for Soybean Oil In Industrial Fields

By D. K. FARSTAD
Spencer Kellogg & Sons, Inc., Buffalo, N. Y.

IN DISCUSSING the outlook for soybean oil in industrial fields we should first review briefly where soybean oil has been used industrially and some of the many factors which tend to influence its consumption. Soybean oil has been used in the production of many industrial products such as paints, varnishes, synthetic resins, linoleum, soap, caulking compounds, core oil, printing inks, sulphonation, etc. In many fields the usage of soybean oil has depended on its substitution for other drying oils such as linseed oil. In other fields the consumption of soybean oil has grown strictly on its own merits.

To better illustrate the factors influencing consumption of soybean oil let's discuss a few specific industries that use large quantities of soybean oil. According to the U. S. Bureau of Census soybean oil consumption for paints and varnishes in the period 1935-1945 averaged about 21-22 million pounds per year, while the 1946-52 period showed an average use of 75-76 million pounds. Soybean oil usage reached 100 million pounds for paint and varnish in 1948, but dropped in 1951 to about 60 million and consumption in 1952 is reported as about 73 million pounds. These figures don't tell the complete story, but before discussing them further let's review a few of the properties of soybean oil and how it is used by the paint industry.

Soybean oil, it must be remembered, is a semidrying oil. Films of soybean oil dry slowly and are relatively soft. The oil polymerizes (or thickens) slowly at temperatures of 580-600° F. as compared with other drying oils. The early use of soybean oil in paints and varnishes was confined generally to how much soybean oil could be blended with linseed oil and other drying oils without impairing drying properties. The incentive to substitute soybean oil of course was lower cost, soybean oil being cheaper than linseed. The amount of soybean oil generally used was approximately 10 percent.

In the early 1940's tremendous strides were made in the chemical treatment of soybean oil to improve its performance in industrial products. In using the term "chemically treated" we are referring chiefly to the maleic treated soybean oils which have been so widely used. The chemically treated oils could be polymerized or "thickened" as rapidly as linseed oil and dried as fast as linseed oil and exhibited similar film hardness. We now had a practical yet economical means of producing in volume a treated soybean oil with excellent drying oil properties.

Effect of World War II

World War II and the government restrictions on the industrial use of soybean oil curtailed increased consumption of soybean or chemically treated soybean oil until late 1946.

With the removal of government controls, soybean oil consumption in paint and varnish jumped from 25-30 million in 1945-46 to 90 million in 1947 and 100 million in 1948. Chemically treated soybean oil contributed a great deal toward expanded industrial consumption of soybean oil. The soybean oil content of house paints no longer had to be restricted to 10-15 percent of total oil because of drying problems. Chemically treated soybean oil could be used as 50 percent or 100 percent of the oil content without sacrificing quality. Today paint and varnish chemists are generally agreed that commercial, chemically treated soybean oils are as good as linseed oils for house paints in all respects.

Other factors also contributed to the sharp increase in industrial soybean usage during the period after World War II. In 1947-48 linseed oil prices were very high, and consumption of tung oil which was very scarce during the war years jumped from 28 million pounds in 1946 to 88 million pounds in 1947 and to 120 million pounds in 1948.

Mixtures of tung and soybean oil were widely used to replace expensive linseed oil in both paints and varnishes. It should be emphasized that during this period chemically treated soybean oil and tung-soybean oil combinations were far cheaper than linseed oil and widespread substitution followed, to take advantage of lower raw material costs.

During 1950, 1951 and 1952 the price of linseed oil declined and the differences between linseed, soybean or Chinawood made the use of tung-soybean oil combina-

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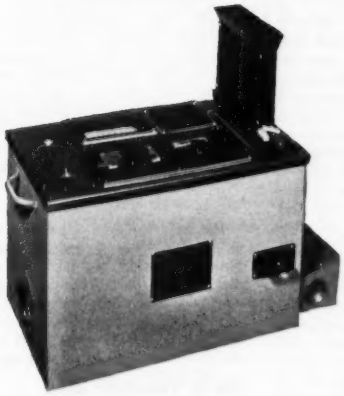

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tions unattractive pricewise. Consumption of chemically treated oils has also been lower due entirely to the fact that soybean oil prices have been only slightly under linseed oil, and ample supplies of linseed oil are available. Chemically treated soybean oils are being sold for some application over the price of linseed oil strictly on the basis of better performance. Industrial soya consumption in paints and varnish for 1951 and 1952 dropped far under usage in 1947-48-49 since no significant price advantage could be obtained by substituting soybean oil.

One important factor which is closely related to paint and varnish consumption of soybean oil is the tremendous growth of alkyd resins. Alkyd resins are generally made by combining phthalic anhydride, vegetable oil and glycerine or pentaerythritol. Alkyds are the base of the so-called synthetic enamels so widely used today, for example on farm machinery and appliances as well as interior enamels for your homes. The properties of the alkyds can be varied widely by the use of various drying and non-drying oils as well as by changing the proportions of phthalic anhydride.

Alkyd resins appeared in the late 30's and were used almost entirely for industrial paints rather than on paints you would buy in your paint store for home use. The increased use of alkyd resins in trade sales paints developed since 1949.

The properties of soybean oils are ideally suited to their use in alkyd resins. The poor drying and slow polymerizing properties of soybean oil are easily modified in alkyd resins and today more soybean oil is used in the production of alkyd resins than any other vegetable oil. Soybean alkyds dry satisfactorily and have excellent nonyellowing properties.

Soybean oil used by paint manufacturers who produce their own alkyd resins is generally included under the paint and varnish figures of the government census report. However, soybean oil used in alkyds supplied to the paint and varnish industry by individual alkyd manufacturers is included in the census report under "other uses."

According to the census report 31 million pounds of soybean oil were used in alkyd resins in 1949. Consumption increased to 40 million in 1950, 64 million in 1951 and an estimated total of 60 million in 1952, with the paint and varnish industry consuming the major portion of the alkyd resin production.

The increased consumption of soybean oil in alkyd resins means that total consumption of soybean oil in the paint industry in 1951 was actually the 60 million pounds reported under census paint and varnish classification plus 64 million used in alkyds for a total of 124 million pounds. The estimated consumption of soybean oil in alkyd resins for 1952 was 60 million pounds which, when added to the 73 million pounds reported for paint and varnish, indicates a total soybean oil consumption of 133 million pounds.

These figures do not include soybean fatty acid consumption in alkyd resins. The distillation of the soapstock obtained from the refining of soybean oil provides a relatively cheap source of fatty acids that find wide application in industrial products. Accurate figures on consumption of soybean fatty acids are not readily available but recent changes inaugurated by the Bureau of Census will provide better consumption data on soybean fatty acids in the future.

Let's take another look at what has happened in the paint and varnish industry. It should be noted that the paint industry has made tremendous technical progress in the last 10 years and has become a highly technical industry. The combined efforts of the technical personnel of both the paint manufacturers themselves and companies who supply the paint industry with raw materials have been chiefly responsible for this progress, and as a direct result industry and the general public are getting better paint products and many entirely new type products.

In the past, for example, varnishes based on linseed or tung oils were generally used in enamels, flat paints, etc., for trade sales paints. However, in the last few years the trend has been toward the use of alkyd resins to replace varnishes, and the increased soybean oil consumption in alkyd resins is evidence of this rapid rate of change.

Greatly expanded chemical facilities have also made many new materials available to the paint manufacturer. Latex, styrene and vinyls are a few of the materials that are being used today. The consumption of latex for rubber base flat paints has been high. Actually the present trend in latex paints is the modification of latex with alkyd resins and this trend will probably increase.

The introduction of alkyd flats and wider usage of odorless solvents in many paint products has met the increased consumer demand for interior paints with better odor characteristics. The consumption of soybean oil by the paint industry shows quite clearly that soybean oil is not losing its market in protective coatings.

Do It Yourself Idea

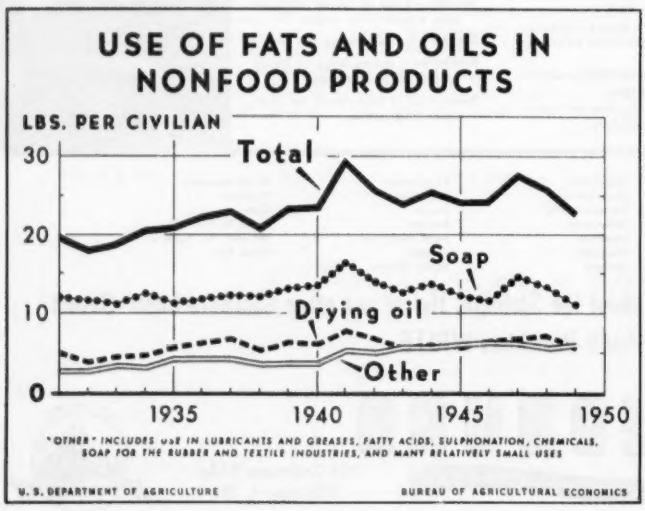
One important factor affecting the paint industry which tends to increase and maintain a high consumption of paint products is the "do it yourself" idea. During the past year it is estimated that 75 percent of trade sales paint application was done by home owners themselves. The expanding use of paint rollers for applying paints has simplified paint application and reduced the amount of time needed to repaint a kitchen or living room.

It is fashionable today to be a painter, carpenter or bricklayer as the occasion may demand around the house. The householder has discovered that the hardest part of redecorating the living room is getting started. He creates in effect a higher standard of living for his family with a very nominal cost. The idea has spread and will aid in keeping production of paint products high.

The floor covering industry producing both inlaid and felt base types of linoleums is a large user of drying oils. Linseed oil is the chief drying oil used in linoleum but regular soybean oil as well as the chemically treated soybean oils has replaced a portion of the linseed oil.

So far the substitution has been mainly on a basis of economics. In 1949, for example, when a wide difference in the prices of soybean and linseed oil existed, a total of 76 million pounds of linseed oil and 32 million pounds of soybean oil was consumed. In 1952, 90 million pounds of linseed oil was used compared to 16 million pounds of soybean oil. The drop of over 50 percent in consumption of soybean oil was due chiefly to unfavorable price comparisons between linseed and soybean oil.

Usage of alkyd resins made with soybean



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oil as vehicles for print paints in felt base linoleum is gradually growing and will be reflected in increased soybean oil consumption in the floor covering industry.

Vinyl resins are being used to produce plastic floor coverings and their consumption will undoubtedly increase. The rate of increase is difficult to predict but it is interesting to note that modified soybean oils are being used as plasticizers for the vinyl resins used in floor coverings.

There are many smaller uses of soybean oil—caulking compounds for example in which blown soybean oil is probably the chief vegetable oil used due to its ability to surface dry and yet leave the interior of the caulk soft and pliable for a long period of time. Soybean consumption in caulking compounds has leveled off in recent years and probably will not show any pronounced gains or losses in the near future.

Blown soybean oil is also widely used as a plasticizer for lacquers, often in combination with other plasticizers. The usage of soybean oil in coated fabrics and artificial leather is small and with the competition afforded by vinyls is likely to decrease further. Soybean oil is also used in printing inks but this usage is not a major factor in soybean oil consumption.

The consumption of soybean oil for industrial uses has grown and expanded rapidly in the last 10-15 years, and soybean oil today has assumed an important role in drying oil fields. The many technical improvements in both chemically treated soybean oils and alkyd resins have contributed much to the increased consumption of soybean oil. The ability of industrial consumers of drying oils to change their formulations when economic factors favor the use of soybean oil, also improves the outlook for increased industrial usage.

Soybean oil today has attained an important position in the drying oil field through the combined research and development activities of private industry and the regional laboratories of the Department of Agriculture, particularly the Northern Regional Laboratory. This research is continuing and future achievements of these laboratories will influence future industrial consumption. The outlook for industrial consumption of soybean oil is, indeed, good.

There are few industrial uses to which soybean oil cannot be adapted if it is economical to do so.

Outlook for Edible Uses of Soybean Oil

By G. M. GIBSON
Kraft Foods Co., Chicago, Ill.

KRAFT FOODS CO. is a large user of vegetable oils. We are especially very large users of soybean oil. We manufacture and merchandise vegetable oil products in consumer packages only. Our use of soybean oil has more than kept pace with the growth of the soybean industry.

In the short period between the start of World War II and the present time, we have seen this country change from a net importer of vegetable oils to a net exporter and practically all of this can be accounted for in the growth of the soybean industry.

Is it any wonder that the Kraft Foods Co. and other manufacturers of vegetable oil products have hooked their wagon to the soybean star? And our motive is certainly not altruistic. Before World War II started the cotton industry already found itself under government control. There was a surplus of cotton. They voted themselves under government acreage allotments.

Because cottonseed oil is a by-product and the supply of our raw material was being threatened, it was only natural that we, and others, should be willing to gamble that the soybean oil industry would, before too many years, approach and pass the vegetable oil that had been our leader for so many years. We were right. We have seen this come to pass.

At the present time the soybean industry is in a very enviable position: no surplus—whereas the cotton industry is once again on the threshold of acreage allotments and a curtailment of cottonseed oil production.

The consumption of soybean oil this past crop year will be approximately 42,000 tank cars or over 2½ billion pounds. The consumption of cottonseed oil this past crop year will only be about 18,000 tank cars or less than half the soybean oil consumption.

In the two previous crop years the consumption of soybean oil was a little over 40,000 tank cars each year, whereas the cottonseed oil consumption was 22,000 tank cars one year and 18,000 in the other.

Here are some figures that are both interesting and enlightening. Soybean oil used in the manufacture of margarine so far in 1953 amounts to 56 percent of the fat content, against 22 percent for cottonseed oil. In the prewar years (1935-1939), soybean oil used amounted to only 8 percent against 34 percent for cottonseed oil.

Soybean oil used in the manufacture of shortening in 1952 and so far in 1953 amounts to approximately 54 percent against 24 percent for cottonseed oil. However, during the prewar years (1935-1939), here again only 8 percent soybean oil was used in the manufacture of shortening.

Also keep in mind that 85 percent to 90 percent of all the soybean oil produced is used for edible purposes. The figures for the last two crop years were 90 percent and 89 percent respectively. This is even more significant when you remember that the soybean crop during the past three years has approached the 300-million-bushel figure.

While we should not discount the many uses of soybean oil in the industrial and technical fields, nevertheless it seems plain that it is in the edible field that soybean oil is going to have to look for significant increased consumption, either through development of new products or an increased percentage of soybean oil in the vegetable oil products now being consumed—or in the natural increases which you can expect, due to population increase and increases in the consumption of vegetable oil products due to merchandising methods. This is what we call broadening the base use, showing the consumer new uses and recipes for a now existing product.

Where Pitfalls Lie

It is about the second of these that I want to touch upon, namely, an increased percentage of soybean oil in the products now being manufactured, because it is in this field that most of the pitfalls seem to lie, especially for the next year or two.

It is practically impossible to talk about the outlook for soybean oil uses in the edible field without talking about your principal competitor, cottonseed oil; and I now want to add lard to your list of competitors. You have a lot of competition

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but you seem to have thrived on it—at least until now.

I personally cannot think of any other group of raw materials that are as interchangeable in the manufacture of food products as are soybean oil, cottonseed oil and lard, both in consumer packages and for commercial use.

You can make margarine out of soybean oil alone, cottonseed oil alone or a combination of both. You can make mayonnaise and all types of salad dressings equally satisfactory out of either or both. You can make shortening out of all three, separately or in combination.

I hope none of you will make the same mistake, in not recognizing this fact, that one of our governmental agencies has. We have had two hearings this year with the Commodity Exchange Authority on a regulation affecting trading on the futures markets in soybean oil, cottonseed oil and lard, and one of the basic misconceptions in their regulations is the fact that they do not recognize, either through a lack of knowledge on their part or on the part of our law makers who wrote and put into law our Commodity Exchange Act, this interchangeability of these three raw materials.

So you can readily see that competition among the manufacturers results in the interchanging of these fats, based in good part on pure economics. Herein lie the pitfalls. Don't get a false sense of security as to continuing increases in soybean oil usage, because of the statistics cited above showing the increases made to date. After all, you have had growing pains—especially during the past 15 years.

Before soybean oil started to play such a prominent role, say 20 or 25 years ago, a buyer could take the supply and demand factors of lard and cottonseed oil and come up with his decisions, with an eagle eye on the world price of competing fats, because we were a net importer of fats and oils at that time. Day-to-day fluctuations in the market price were relatively small as compared to what we have seen in the last 10 years.

What do we do now? We are a net exporter of fats and oils. The demand factor is complicated by our lack of knowledge as to what we can export and at what price. This is even more complicated by the dollar situation abroad and by competition from the non-dollar areas of the world.

The supply factor is even more complicated by price supports, causing not only an artificial shortage but fictitious prices. Make note of what happened to cottonseed oil this past season. The government owns approximately 1 billion pounds of this oil. This is about 11 months supply based on this past year's consumption.

The $64 question is—what are they going to do with it? This is a vital question to the soybean industry as it would affect not only the consumption of soybean oil but the price it would take to move 40,000 to 45,000 tanks of soybean oil into domestic consumption or export, either in the form of oil or beans. This is further complicated by the government support price on soybeans.

Another $64 question: How many bushels of beans will be impounded in the government loan this crop year? If a large enough quantity is impounded and finally owned by the government, it will undoubtedly cause the price to increase to the support level. But please remember that a support price also acts as a roof or ceiling price, out of which a commodity cannot move.

If this should come to pass—and I don't say it will, although it is a possibility—this could cause a serious curtailment in the domestic use of soybean oil during the coming season.

Please remember that a lot of other things have happened during the past 10 years. California is now a very large producer of cottonseed oil and whereas in previous years the value of this oil was the price in producing areas, plus the freight, it is now an independent market. During this past season most of the cottonseed oil produced out West was sold to the government and was largely replaced by soybean oil.

Also keep in mind that freight rates have increased greatly and that with soybeans being produced principally in the North Central states, if the soybean industry is to dispose of the oil out of 300-million-bushel crops, it has to compete with cottonseed oil in cotton producing states. And it has to do so on a basis that will move more than two tanks of soybean oil to every one tank of cottonseed oil—if it is to maintain this past season's performance.

It costs approximately 1 cent per pound to ship soybean oil from the principal producing areas to the Southeast — 1¼ cents per pound to the Southwest—and 1½ cents per pound to the West Coast—all cottonseed oil producing areas and all heavy oil consuming areas, containing nearly 40 percent of our total population.

(Continued on page 67)

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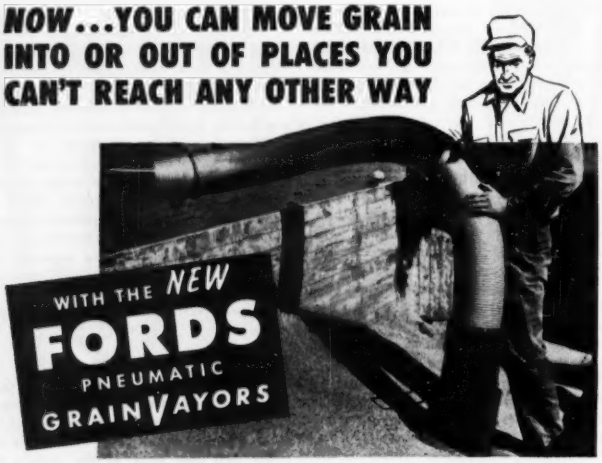

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Nitrogen Products and The Soybean Oil Meal Market

By GUY L. COOPER, Jr.
President, O. A. Cooper Co., Humboldt, Nebr.

WITHOUT ANY apology, I will state that this will not be a technical talk.

I am the president of a small or medium-sized feed milling concern. Our home office is located in Humboldt, Nebr., a country town of 1,400 people—but we are the largest independent Nebraska-owned feed millers and do a respectable volume in an eight-state area.

When I assumed management of our infant feed-milling department in 1928, soybean oil meal was not a commercial product—in fact I had never heard of it though I was quite familiar with linseed meal and cottonseed meal.

Soybean oil meal has been the major tonnage item in our milling operation for many years, but my records do not disclose nor does my memory recall when I actually bought my first car of soybean oil meal. That event is lost in the misty past.

But I do well recall the first car of urea that I ever bought—it was in 1943—just about 10 years ago at this time. It was urea—it wasn't "262 Feed Compound" or "Barretts Urea Feed Compound." After it had set 60 days a 12-pound sledge would bounce off of it the same as it would off of the Washington Monument.

But I have been a constant user of urea since that time. Work with our own cattle soon demonstrated its safety and effectiveness.

It is, of course, understood that when we speak of urea in feeding, we are referring to its use in connection with ruminants only—practically speaking, cattle and sheep.

The digestive process of ruminants is aided and abetted by billions of friendly rumen bacteria. These bacteria become effective with maturity of the digestive tract of the animal, and this occurs at about the time the animal, the lamb or calf, ceases to be principally dependent on mother's milk for nourishment. Roughly, this is about the third or fourth month of the animal's life.

Rumen bacteria do many wonderful things. They digest the complex polysaccharides, cellulose and hemi-cellulose, that non-ruminants cannot digest. The digestion of these substances can only be by the enzymes of symbiotic bacteria. They synthesize just about every known vitamin except vitamins A and D.

But the particularly wonderful thing that rumen bacteria do, that we are directly concerned with at this time, is the synthesis of inorganic nitrogenous chemical compounds into relatively complex organic proteins in which form they can be used effectively by the animal. The commercially important non-protein nitrogenous compounds at this time are urea or ammonia, the latter usually as ammoniated molasses.

We are only thinking of urea and soybean oil meal in connection with ruminants, and this of necessity brings to mind those little living chemical factories that convert urea into true protein in the rumen or paunch of the sheep and cow, and then passing on down the alimentary canal, perish and are digested and assimilated by their unaware and ungrateful, but greatly benefited host.

Let us not over-simplify this matter. Fast-gaining cattle require rations which properly nourish rumen micro-organisms. Nutrients needed by micro-organisms include (1) nitrogen containing material of which not over one-half in the supplement, one third in the total ration may well come from non-protein nitrogen—the balance must be true protein as from soybean oil meal; (2) available energy, none of which can come from urea; (3) minerals—notably phosphorus and sulphur; (4) trace minerals; (5) unidentified factors known to be present in certain plant-derived materials as dehydrated alfalfa meal, soybean oil meal, molasses, and perhaps other ingredients; and (6) vitamin A or carotene.

Urea qualifies as a source for a portion of the nitrogen material. It can supply none of the other requirements. The bacteria break down urea into carbon dioxide and ammonia and with this simple building block of ammonia (the carbon dioxide is voided through respiration), if the other requirements are present in ample amounts, synthesize true protein.

Let us bear in mind that the protein requirements of mature ruminants are generally acknowledged to be quantitative rather than qualitative, if the rumen bacteria are properly fed. This is in direct

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contrast to the case of non-ruminants. The use of oilseed meals other than soybean as the single source of protein in swine or poultry rations, even though supplemented with proper minerals, vitamins and unknown factors, would not give very happy results.

The cattle feeder has a relatively inefficient meat producer to deal with, measured in terms of pounds of feed required for a pound of gain. Cattle cannot compete with the roughly three pounds of feed for a pound of gain that the hog, chicken and turkey people talk about and accomplish during the more efficient feed conversion phase of these creatures' life cycles.

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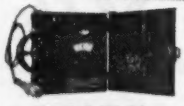

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But the cattle feeder does have a relatively uncritical feed converter. Cattle and sheep harvest the grass from millions of acres of rough, arid, semi-arid or mountain pastures. The result is millions of tons of human food, that could not be produced in any other way. In view of this, let us not begrudge the fact that ruminants can also utilize certain amounts of non-protein nitrogen.

Swine and poultry are more efficient feed converters as regard concentrates than are cattle and sheep. The result is that the swine and poultry to a large extent outbid their cud-chewing competitors for the available protein supplies. This was particularly true before urea came into the picture.

Now that urea is available, and since cattle can utilize one-half of the protein in their supplement from non-protein sources, which are normally much cheaper than vegetable proteins, they, the ruminants, are placed in more of a position of equality. At prices prevailing a year ago, a 41-percent-protein range feed containing one-third of protein from non-protein sources cost about $14 a ton less than a similar feed derived from all vegetable proteins. A 32-percent-protein cattle supplement containing half of the protein from non-protein sources was costing about $36 a ton less than a good 32-percent-protein concentrate for chickens. Of course, the comparative prices of urea and oilseed meals keep the relationship constantly changing.

The point I wish to make is that your largest customers, the poultry and swine units of this nation, cannot utilize non-protein nitrogen, and the result of low cost cattle supplements with urea means that the cattle feeder will be in there bidding for the true protein needed for two-thirds of his requirements longer than he would be bidding otherwise. Urea has made possible the production of feeds of comparable value for ruminants for less money. The first result is a broadened outlet for cattle supplements. The end result is more total tons of cattle supplement used and sold, and eventually a broader market for oilseed meals, than before the advent of urea.

Urea has broadened the over-all outlet for your product, soybean oil meal, in cattle and sheep feeds. It has made proper supplementation of cattle rations economically more practical, and practical under broader conditions. Urea is a promoter of soybean oil meal consumption, rather than a competitor.

Your competitor in the cattle feed market is other oilseed meals, rather than urea, now, as in the past. Solvent soybean oil meals do have certain mechanical limitations in connection with the production of large-sized range cubes of desired hardness and freedom from fines. It is almost necessary to use a certain amount of old process soybean oil meal, linseed oil meal, or cottonseed oil meal with solvent process soybean oil meal. It is just that a little binder is needed. The amount needed is not great. There is nothing you can do about it, so just don't worry about it.

Urease is a different matter. You can do something and should do something about this. Urease is the enzyme that breaks down urea into ammonia—the resultant feed from high-urease-content solvent soybean oil meal and urea is bad. It smells like an ice plant, protein is lost—it is unfit for animal food.

Urease is not a problem with old process soybean meal, or with any type of cottonseed, linseed or gluten feeds; nor is it a problem with properly prepared solvent process soybean oil meal. We, for one, would not care to make commitments on solvent soybean oil meal without an understanding on its urease activity. We failed to do this last year with very unpleasant results—much material would not pass our tests and had to be segregated for non-critical usage. It has been several months since any unacceptable material has been received at our plants. The tests for urease activity are simple, fast and accepted. It is accepted that properly-prepared solvent soybean oil meal will have some urease activity—but to an acceptable degree only. If *no* urease activity could be determined we would be dealing with an overcooked product with a bound-up or poor-quality protein. Undercooked meal—or meal containing some uncooked fraction—just releases ammonia too soon.

To summarize, urea makes a good cattle supplement better and cheaper. Don't worry about urea making a dent in the outlet for soybean oil meal. The contrary is true. Do worry about making a compatible product to go with urea. The broadened outlet for rumen-type cattle supplements to go with low-grade roughage, both for fattening and dairy cattle, and the almost universal acceptance of range breeder cubes, since the advent of urea, has tremendously broadened the demand for true protein, for which there is nothing finer than soybean oil meal.

The economy and general suitableness of ruminant feed when urea is used has been a big factor in a broader total demand for cattle feeds—not only for the supplements themselves but also for the total amount of oilseed meals that must go into them.

—s b d—

BURLAP FUTURES MARKET

The board of governors of the Commodity Exchange, Inc., set Wednesday, Sept. 9, 1953, as the date on which trading in burlap futures was initiated on the Exchange.

Trading in burlap futures will be conducted between the hours of 10:45 a.m. and 3:05 p.m. and the first delivery month will be November 1953. Other delivery months will be February, May and August 1954.

Margin requirements have been fixed at $500 per contract and at $200 per straddle transaction. The trading unit in the burlap futures contract will be 50,000 yards in 25 bales, the contract basis being 40-inch—10-ounce Standard Calcutta burlap.

Markets for Soybean Oil Meal In Manufactured Feeds

By W. E. GLENNON
President, American Feed Manufacturers Association

PROBABLY no two industries are more interdependent than the feed and soybean industries. The rapid development and growth during recent years, of both our industries, has been the result of combined efforts.

Soybean oil meal has become the protein "staff-of-life" of the feed manufacturing industry. Today, practically 100 percent of the annual soybean oil meal production is utilized in livestock feeding. Over 80 percent of this annual production goes directly to feed manufacturers in all sections of the country. This meal is blended with other ingredients and sold as balanced rations for livestock and poultry.

Only a few years ago soybean oil was looked upon as the major product from soybeans, even though 80 percent of the resulting products from processing is meal and less than 20 percent crude soybean oil. As recently as some 10 years ago, there was considerable apprehension on the part of some processors that it would be increasingly difficult to market the ever increasing quantities of soybean meal. Some were actually afraid it would become a drug on the market.

Developments have proven that this assumption was entirely wrong. Every year, the increasing supplies of soybean meal have been easily absorbed by the nation's livestock and poultry. As a matter of fact, in nearly every year of the past 10, additional quantities of soybean meal would have been used, if it were available.

Today our industry is using as much soybean oil meal as all the other high protein meals put together. These other high protein meals include linseed, cottonseed, corn gluten, fish meal, tankage and meat scraps. This certainly should be ample proof of the acceptance of soybean meal as a high quality, nutritious ingredient by the feed industry. It's the "lifeblood" of our industry, as far as protein is concerned.

Big Increase

In the past 12 years the use of soybean meal for livestock feed was increased about four and one-half times. For the crop year 1939-40 about 1,275,000 tons went for livestock feed. Today (1952-53 crop year) about 5,500,000 tons will be used by livestock and poultry.

During the past 10 years the use of soybean meal by feed manufacturers has increased percentage-wise much more rapidly than the total tonnage of manufactured feed. Manufactured feed tonnage in 1939 was about 18 million tons. Estimated tonnage for 1952 was something over 34 million tons. Even though manufactured feed tonnage has not quite doubled, the amount of soybean meal used by feed manufacturers has increased more than four times. Improvement in the product combined with increased availability have been factors in this spectacular increase.

Advances in animal nutrition and the discovery of new vitamins, especially in the past five years, have given added impetus. The discovery and use of vitamin B-12 and the various antibiotics have greatly stimulated increased use of soybean meal. The amount of soybean meal that is used today, in every ton of poultry and swine feed for example, is much greater than it was just a few years ago. In addition, the manufactured feed of today is the most efficient in history.

What are the likely trends in the future that will have a bearing on the continual use of soybean meal? It would seem to be that the total use of soybean oil meal in manufactured feed in the years ahead will depend primarily on the production of manufactured feed. It is unlikely that we will have the increase in the amount of soybean meal used per ton that we have had in the past. In other words, we may be approaching the "saturation" point as far as the amount of soybean meal in the average ton of manufactured feed.

Livestock and poultry numbers will be the major factor in determining the future growth of our industry. It is interesting to note that percentage-wise the use of manufactured feed compared to total feed consumed is increasing. Today, feed manufacturers account for 27 percent of total feed usage, exclusive of pasture and roughage. This figure was less than 20 percent just a few years ago.

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What Forecasters Say

If the census forecasters are correct, this country will need ever-increasing amounts of meat, milk, eggs and other livestock products to keep our rapidly-increasing population well fed, healthy and strong. Latest reports indicate that our population has passed the 160 million mark and by 1975 it is reasonable to expect a population of 190 million.

In view of this increasing demand for foodstuffs, the feed manufacturing industry and the soybean industry occupy a very enviable position. The opportunities for further growth and service are practically unlimited. It would not be out of order to say that we are living in an era of opportunity.

Individually and collectively, we can perform a more important function than has ever before been possible.

— s b d —

STRAYER

(Continued from page 20)

have not yet paid off, but we have hopes they will do so in future years.

Many of the problems which haunted us a year ago are still with us. The federal grades on soybeans still remain as they were last year and the year previous, even though at least some of us in the industry feel that they do not properly reflect values contained in the soybean crop. Following the rather lengthy discussions of this subject which were included in the program of our convention at Lafayette, Ind., last year, where J. C. A. Faure of England and M. Hirano of Japan participated, the buyers of soybeans again became more interested in our soybeans. As a result of our discussions some of the buyers began calling for federal appeal on grades as the cargoes of soybeans were loaded. Since that procedure has been instituted the export shipments have been more satisfactory to buyers, and the volume of exports on 1952 crop soybeans through June 30 was already greater than total volume of exports from 1951 crop. Up to July 1 a total of over 27 million bushels of soybeans had entered export channels from 1952 crop. Prospects for 1953 crop export seem even brighter. In an effort to obtain even better quality soybeans some buyers for export purposes are now offering to buy U. S. No. 1 soybeans at a premium over No. 2's.

As a result of Mr. Faure's visit to our convention last year, the contacts which he made here, and the work your Association has done along this line, the International Association of Oilseed Crushers, at its meeting in the Netherlands in early July, authorized the establishment of a committee which will be charged with the responsibility of writing a contract that can be used as a basis of trading on export purchases of soybeans from the United States. This proposed contract would incorporate protection for both the buyer and the seller, would include the best points of each of the two systems of trading, and thus open up an even larger market for American soybeans in the European markets. It is expected that this

committee will do its work during the next year, report back to the International Association of Oilseed Crushers at its next meeting in 1954. We will watch developments with a great deal of interest. Frankly, foreign material is the one big factor under consideration, and if we were to make changes in the allowable percentages of foreign material in our own federal grades it would partially solve the problem.

Another of the very important problems to our industry during the coming year will be that of making the adjustments which will come with acreage quotas on wheat, cotton, and perhaps other crops, including corn. If acreage quotas are placed on these crops, and not on soybeans, then it is entirely within the realm of possibilities that we will have a tremendous jump in soybean acreage in 1954. Should support levels be kept at 90 percent on soybeans, and that decision is entirely within the jurisdiction of the Secretary of Agriculture, and should we have a huge acreage increase and normal crop year, we might have some very serious problems on our hands in the marketing of the crop. Up to this year we have always been able to say that soybeans have not cost the federal government a single cent through price supports. Let's hope we can continue to make that statement.

But it is time we were doing some constructive thinking about 1954 soybean cropping plans. Soybeans are not on the basic commodity list, and it is doubtful if they should be there. But we must anticipate what will happen if we have a large crop and support prices—either we will accumulate large surpluses or we will have very cheap prices. We must be ready to make a choice. We must start looking ahead into 1954—now.

Financially, the past year has not been as successful as some of the previous ones. We have paid all our bills, we have built up the paid membership as we did so, and we have done the very best job we could do with the facilities at hand in representing the interests of soybean producers. We ended the year with $1870.59 less in assets than at the beginning of the year. There was an increase in membership returns, a decrease in advertising revenue, and a decrease in the returns from elevators and processors participating in our educational and promotional program. When these decreases were added up and balanced against the returns from the membership we still ended up with a net loss for the year. We have been fortunate in showing a net gain during each of recent years, and while this net loss is not a catastrophe we must plan carefully for the next year.

A new service instituted for those interested in keeping in constant touch with developments in the soybean industry is Late News. Authorized by the board of directors at the December meeting, this news letter is included as a part of The Soybean Digest during each of the 12 months. For those persons desiring more frequent information, copies are published once during the month intervening between Soybean Digest copies between December and September, and weekly during the harvesting and marketing period of September through December. The reception to this letter, and the subscriptions to it, have been very gratifying. It has been a new experience for your staff, but we find that it does assist in keeping us in constant touch with developments which we might otherwise miss. We hope to increase the circulation of Late News materially during coming months, when the harvest season is on.

One year ago I suggested that perhaps the soybean industry has had things too easy, and that it might take a rude shock to bring us out of complacency and make us realize that all competitive industries, as well as many comparable ones, have developed, over a period of years, promotional and public relations programs. Perhaps we are in the process of being awakened from the complacency. There have been many changes in the industry during the past year—and there will be many more. Some of the faces which we have known for years are no longer with us. Casualties have taken place—and others will appear. Consolidations will be even more common, and the efficient will survive and the inefficient will drop by the wayside.

Most of the industry-wide educational and promotional organizations have been established in times of adversity. I would like to think that the soybean industry is intelligent enough and far-sighted enough to start planning now for the future. New markets, expanding markets, new uses, are not going to come easily. We are operating in a highly competitive world. We must recognize it. In plain language, we need more people actively interested in and working for the common cause of the soybean industry. Growers, handlers, processors and exporters all have a stake in the future of this industry, and the time is rapidly approaching when joint efforts of all groups concerned must become a reality.

The field program of the American Soybean Association, which was instituted several years ago, has been dormant during the past two years. It is my recommendation that the board of directors give consideration to the desirability of reinstating that work. Without the field contacts it will become increasingly hard to make the kind of progress we all want.

Through the period of years the major function of this Association has been that of doing everything in its power to place the soybean crop in its proper price relationship with other and competitive crops. That must continue to be our goal. As production increases, as it may well do during the coming year, we may have increasing problems on our hands. They will be problems which will require active promotion—and which cannot be solved by passive measures. Included will be education, legislation, research and promotion. Adequate financing will be required. We must provide for it. And we must start doing so now!

In closing this, the 13th annual report I have made to the membership of the American Soybean Association as your secretary, I want to pay tribute to those who have assisted in the work of the organization. To Chet Biddle, Jake Hartz, Jr., Howard Roach, Ersel Walley, Albert Dimond, Carl Simcox, John Evans, Dave Wing and the others, both on and off the board of directors, who have contributed of their own time and efforts, I want to extend my most sincere thanks. To Ed Tillman, O. H. Acom, Henry Cohn and the others who have helped with the planning and preparation of this convention program, thanks also are due. To Kent Pellett, Del Cobie, George McCulley and the other members of the staff who have made the accomplishments of the year possible, and to all others who have in

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one way or another contributed to whatever progress has been made during the year, my personal thanks. We trust the year has been a satisfactory one, and that this convention will bring to you the things which you want from it.—*Geo. M. Strayer, secretary-treasurer, American Soybean Association.*

Resolutions

BE IT RESOLVED by the 33rd annual convention of the American Soybean Association:

We express our thanks to the St. Louis Merchants Exchange, the St. Louis Convention Bureau, to Tom Terry, organist, for his entertaining music, and to Henry Cohn, Sr., O. H. Acom, Ed Tillman, Carl Simcox and Albert Dimond for their cooperation and assistance in organizing this successful convention at St. Louis, Mo., Aug. 20 and 21, 1953.

STORAGE

To promote more orderly marketing of the 1953 crop we recommend greater expansion of storage facilities, both private and public.

RESEARCH

Whereas the soybean crop of the nation is approaching 300 million bushels, worth somewhere near 1 billion dollars, and whereas, the American Soybean Association is composed of all those interested in soybeans from farm to finished product and whereas, many federal, state and private research projects are being carried on in the interest of every phase of soybean production, processing and marketing:

Therefore be it resolved that the American Soybean Association exert itself to codify and analyse present research in the field of soybean activities and use its influence to promote new phases of research that may be needed.

The American Soybean Association urges that the board of directors be instructed and directed to exert every effort possible that more adequate federal and state funds be apportioned for research activities.

SOY PRODUCTS

We pledge our continued support and appreciation of the fine work being done to prove and promote the value of soy flour and other soya food products in both the domestic and foreign markets. We approve all new uses being developed for greater utilization of soybean oils in edible food and animal feed products.

EXPORTS

We urge greater emphasis upon exports and opening new markets for American fats and oils by the appropriate agencies within the U. S. Department of Agriculture.

FEDERAL GRADING STANDARDS

We hereby instruct the board of directors to give consideration to calling a meeting in some central location of representatives of all segments of the soybean industry to consider the advisability of making changes in federal soybean grading standards.

MARKETING PRACTICES

Whereas, it is now trade practice to assess discounts for soybeans grading below U. S. No. 2 yellow and whereas, it is not general trade practice to pay adequate premiums for soybeans grading better than U. S. No. 2 yellow:

Resolved, that this Association go on record as favoring the development of a trade practice of paying adequate premiums for beans of better quality than U. S. No. 2 yellow;

And be it further resolved that the payment of such premiums extend fully back to the producer of the beans.

SHORTENING EXTENDERS

We reaffirm our stand taken in years past that no product shall be incorporated into an American food that has not been conclusively proven to be nutritious and in the interests of the consumers' health.

MARGARINE

The American Soybean Association objects to the subsidized sale of butter in competition with table spreads made from vegetable oils. This will work for undesirable food distribution practices and be detrimental to existing price support programs for other farm commodities.

—s b d—

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TO BELTSVILLE

DR. HERBERT W. JOHNSON

Dr. Herbert W. Johnson, leader of federal-state soybean research in North Carolina and South Carolina, was transferred to Beltsville, Md., Sept. 1, according to Dr. A. H. Moseman, chief of the Bureau of Plant Industry, Soils, and Agricultural Engineering.

In his new post Dr. Johnson will assist Dr. D. F. Beard, head of the division of forage crops and diseases, in supervising the soybean improvement program of the U. S. Department of Agriculture. He will take over much of the work formerly done by Dr. Martin G. Weiss, who in February was made director of the Bureau's research in field crops.

Dr. Johnson is well known to the soybean industry in the Southeast where he has represented the U. S. Regional Soybean Laboratory since 1948. He participated in the regional testing and the release of the Jackson variety, a high-yielding soybean recently introduced for the area.

Among his scientific publications are reports of his studies on (1) the effects of bacterial pustule disease on yield and chemical composition in soybeans, and (2) estimates of genetic variability on soybeans and their application to breeding procedures.

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BUYS MENTE PLANT

Fulton Bag & Cotton Mills of Atlanta has announced the purchase from Mente & Co. of their Savannah plant and expected to take over operations at this point at the end of August.

This plant will give Fulton a manufacturing location on the East Coast where favorable freight rates will enable them to serve more economically and effectively buyers of burlap bags, baled burlap, and other products throughout the Southeastern states.

Fulton presently operates bag factories in New Orleans, St. Louis, Kansas City, Minneapolis, Dallas, Denver and Los Angeles, as well as in Atlanta and now in Savannah.

— s b d —

GIBSON

(Continued from page 60)

The soybean oil industry needs to retain its share of the business in these areas if it is going to sell the output of another 300 million bushel crop of soybeans.

However, if you can continue to have a free market on your products without unduly large quantities of soybeans being impounded in the government loan, it is my firm conviction that you will continue to expand the use of soybean oil in the edible field during the coming season.

You will also, I feel sure, have a much better opportunity to develop your export markets on soybeans and soybean oil. I cannot refrain from commenting on Mr. Quintus' published report on the vegetable oil situation in Europe. If you haven't read it, you should. It is one of the most realistic reports of its kind I have seen.

Can you INOCULATE *without* WATER?

No one likes to moisten soybean seed when applying inoculant. Certain farmers reasoned that since the fine, easy flowing humus base of LEGUME-AID Inoculant visibly clings to dry seed, the wetting process could be omitted. They tried it — and claim success.

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Directions for using the famous "Inoculant in the Carton" will not be changed until government agronomists approve the dry-use method. But if you care to experiment, we suggest that you try dry inoculation with LEGUME-AID on part of your seed planting and moisten the rest in the conventional way. Compare the results and you'll get your own answer. For complete information, see your dealer or write direct.

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The INOCULANT in the CARTON

PROCESSOR GROUP ELECTS OFFICERS

THE FOLLOWING officers were elected to serve the National Soybean Processors Association during the 1953-54 crop year at the annual meeting in Chicago Aug. 13:

President, R. G. Houghtlin, Chicago; vice president and chairman of the executive committee, W. E. Huge, Central Soya Co., Inc., Fort Wayne, Ind.; secretary, R. G. Golseth, Lauhoff Grain Co., Danville, Ill.; and treasurer, H. A. Abbott, Funk Bros. Seed Co., Bloomington, Ill.

Clark Yager, Pillsbury Mills, Inc., Minneapolis, Minn., and Eldred A. Cayce, Ralston Purina Co., St. Louis, Mo., were elected to the executive committee for terms expiring Sept. 30, 1955.

Philip S. Duff, Archer-Daniels-Midland Co., Minneapolis, Minn., and Jasper Giovanna, Decatur Soy Products Co., Decatur, Ill., are holdover members of the executive committee with terms expiring Sept. 30, 1954.

The following are directors of the association: E. A. Cayce, Ralston Purina Co.; S. E. Cramer, Swift & Co.; Dwight L. Dannen, Dannen Grain & Milling Co.; Roger Drackett, the Drackett Co.; Philip S. Duff, Archer-Daniels-Midland Co.; W. H. Eastman, General Mills, Inc.; Jasper Giovanna, Decatur Soy Products Co.; R. B. Jude, Spencer Kellogg & Sons, Inc.; W. H. Knapp, the Buckeye Cotton Oil Co.; Willard Lighter, the Glidden Co.; M. D. McVay, Cargill, Inc.; Ralph S. Moore, Soy-Rich Products, Inc.; Clarence E. Peters, Haynes Soy Products, Inc.; Glenn Pogeler, North Iowa Cooperative Processing Association; J. J. Quinlan, Allied Mills, Inc.; Joe Sinaiko, Iowa Milling Co.; Ralph Wells, Ralph Wells & Co.; Clark Yager, Pillsbury Mills, Inc.

Almost 300 processors and guests of the industry attended the social sessions at the Edgewater Beach Hotel.

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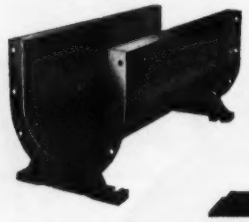

STEEL TROUGH has bolted flanges and detachable feet for ease of alignment during installation.

"DB" (detachable bearing) Boxend are steel plate type which are unbreakable and have interchangeable babbitt or ball bearings.

STEEL FRAME HANGERS with white iron, wood or babbitt bearings offer least resistance to flow of material.

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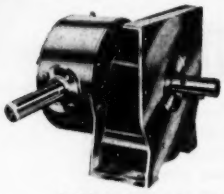
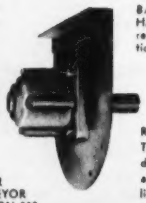


"RB" (roller bearing) Countershaft end with tapered roller bearings and cut-tooth gears. The finest available. Standard babbitt bearing types also available.



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HEADS ALLIED PLANT

FRED CONKLIN

Fred Conklin has been appointed plant manager of the new Allied Mills' Wayne Feed plant at Mason City, Iowa, it has been announced by L. T. Murphy, vice president in charge of production, Allied Mills, Inc., Chicago.

Conklin has been associated with the feed business for many years. Prior to coming with Allied Mills, he was vice president of Dixon Mills, Inc., Dixon, Ill.

Conklin is already on the job at Mason City, and the new Wayne Feed plant, which will be one of the most modern and efficient in the country, is scheduled to begin operation within a few weeks.

Drought Deepens in the Soybean Belt

MORE DRY weather is reported over the soybean belt since our last issue, and the yield outlook has deteriorated.

Soil moisture in late August was reported short in southern Arkansas, northeastern Louisiana, southwestern Indiana, Missouri, Iowa, Illinois, and North Carolina, but not enough to hurt the crop in all places.

A report from northwestern Ohio now places yield prospects as more favorable than 1952. Oklahoma yields are reported tripled or doubled as compared with 1952, which was extremely dry—except for the northeast corner of the state. Yield prospects are still very good in southern Minnesota.

The first official U. S. Department of Agriculture yield estimate out Aug. 10 placed the 1953 soybean crop at 295 million bushels, 3½ million bushels over last year. The Galvin report, also for Aug. 1, estimated the yield at 290.4 million bushels.

The indicated U. S. yield of 20.6 bushels per acre is one-tenth bushel less than last year.

The USDA report for Aug. 1:

Ohio and Indiana report an exceptionally heavy growth of vines this year. The Ohio yield is indicated the same as last year while Indiana shows one-half bushel less than the record of 23.5 bushels per acre in 1952.

The condition in Illinois indicates a yield of 24 bushels, the same as last year. Much of the state's crop is in excellent condition, but dry weather in July in southern and southwestern counties lowered prospects there.

The Minnesota crop is uniformly good over the whole producing area and a near record yield per acre is expected. Iowa soybeans are in good condition in the northern two-thirds of the state, which includes the heavier producing areas, but the crop in the southern one-third of the state has shown some deterioration because of lack of moisture.

Missouri and Kansas have been hardest hit by dry weather, but even here soybeans have held up relatively well and above average yields are reported.

The South Atlantic states have been affected somewhat by dry weather especially in Delaware, Maryland, Virginia and North Carolina. However, soybeans have withstood the drought very well and yields are expected to be about average or above in all producing states.

Drought in the South Central states has again cut yields to some extent, although reported yields are above last year in all states except Mississippi, where the Aug. 1 indicated yield is below both last year and average.

The crop in Arkansas has been damaged by drought, though the expected yield of 18 bushels per acre is above last year. Late July rains improved conditions in Kentucky and Tennessee and above average yields are expected in both states.

Canada's soybean acreage is up sharply again in 1953 and a new record in soybean output probably will be attained, according to the Foreign Agricultural Service.

Acreage, confined to the province of Ontario, is estimated at 216,000 acres, or 26 percent more than the 172,000 acres last year.

Spot reports from our correspondents:

Arkansas

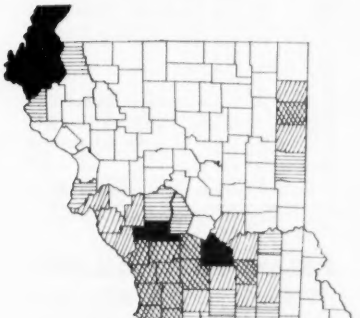
Loyd E. Waters, county agent, for Chicot County (Aug. 20): Beans later than normal. Very poor in our county due to dry weather. We do not have the acreage as in 1952.

Illinois

Russell S. Davis, Clayton, for west central (Aug. 22): Early varieties week earlier than last year. Weather dry. Yield outlook 25 to 30 percent lower. Yield will be in direct correlation with date of planting. Early planting high yield; late planting low yield.

Louisiana

W. M. Scott, Scott Plantations, Tallu-



MISSOURI soybean production areas, 1952 crop year. The darker the area the more beans produced. White, less than 100,000 bushels per county. Horizontal lines 100,000 to 300,00 bushels. Slanted lines, 300,000 to 500,000 bushels. Cross lines, 500,000 to 1 million bushels. Black, over 1 million bushels.

INOCULATE SOY BEANS

with

Urbana Culture

Superior Legume Inoculator

IT PAYS

The Urbana Laboratories

Urbana, Illinois

lah, La., for northeast (Aug. 21): Still short of moisture. Beans are undersize. Crop 10 to 12 percent shorter than expected. Lots of weeds and vines have come up after late July rains. Not enough storage. Probably 60 percent can be stored.

Minnesota

Howard E. Grow, Farmer Seed & Nursery Co., Faribault, for southeastern (Aug. 19): Excessive rain in July but normal now. Temperature normal. Will probably start harvest Sept. 15-20, about a week earlier than 1952.

Mississippi

D. Gray Miley, manager Panther Burn Plantation, Panther Burn (Aug. 24): Maturity normal. General rains last few days. Crop will begin to move Sept. 1 to 10. Yield 25 bushels per acre, about same as 1952. Some bean leaf beetle.

Missouri

Maurice Maze, MFA Cooperative Grain & Feed Co., Mexico, for northeast (Aug. 24): Weather ideal except not enough moisture. Yields reduced because of dry weather but equal to 1952, higher if rain comes very soon. Crop will move mostly a week later than 1952. Large increase in farm storage.

North Carolina

C. S. Hotchkiss, Currituck Exchange, Elizabeth City, N. C., for eastern (Aug. 24): Crop has suffered seriously from lack of moisture in its mid-growing season and also storm beaten in its later stages, therefore we estimate about a 75-percent yield. Crop movements will begin about Sept. 25, about 15 days later than 1952.

Ohio

E. M. Weicher, Delphos Grain & Soya Products Co., Delphos (Aug. 22): Maturity running close to normal. Warm days. Cool nights. Surface moisture poor. No rain 18 to 20 days. Subsurface moisture fair. Movement will begin last week September, about usual time. Yield outlook average close to 30, better than 1952.

South Dakota

H. G. Miller & Son, Garden City, for Clark and Codington Counties (Aug 21): Maturity about week later than normal due to heavy rains. Rains way above normal June through first 10 days in August. Crop looks very favorable for a bumper harvest.

Virginia

John M. Talyor, Department of Agriculture, Richmond (Aug. 21): Maturity 10 days late due to drought. Good rains fell Aug. 14-16 in most producing counties but growth had been retarded by drought. Hurricane Aug. 14-15 damaged foliage in Norfolk area. Unless remainder of growing season is very favorable yield will be 20 percent less than last year. Crop will mature very irregular, Oct. 15 to Nov. 15.

SOYBEANS FOR BEANS

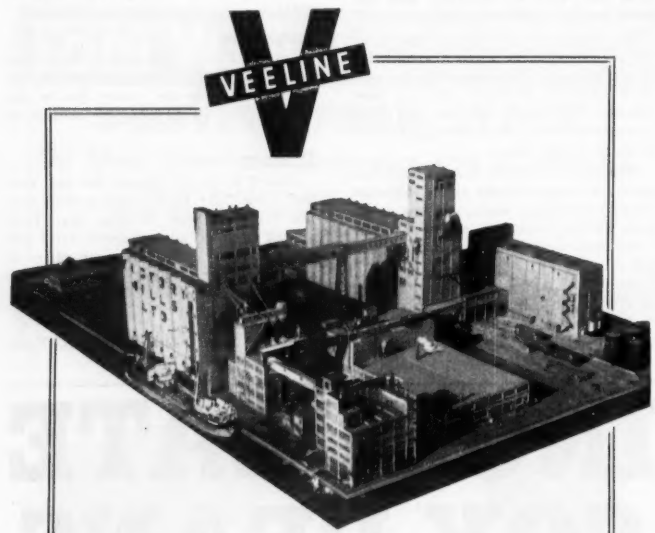
State	Yield per acre			Production		
	Average 1942-51	1952	Indicated 1953	Average 1942-51	1952	Indicated 1953
	—Bushels—			—Thousand bushels—		
N. Y.	16.1	17.5	17.0	145	88	85
N. J.	17.3	20.5	20.0	269	410	440
Pa.	16.0	19.0	17.5	450	361	350
Ohio	20.2	22.0	22.0	20,971	20,680	21,230
Ind.	20.3	23.5	23.0	30,171	38,493	39,629
Ill.	22.4	24.0	24.0	78,829	85,128	87,024
Mich.	17.8	19.0	20.5	1,773	1,748	2,316
Wis.	13.4	17.0	15.5	523	816	775
Minn.	15.7	19.0	18.5	10,914	21,945	25,252
Iowa	20.4	25.5	23.0	35,181	37,587	35,650
Mo.	17.7	19.0	18.0	14,803	32,756	33,552
N. Dak.	11.2	12.5	12.0	147	362	276
S. Dak.	14.3	15.0	17.0	434	1,275	1,496
Nebr.	19.0	26.0	23.0	652	2,288	2,484
Kans.	12.6	11.5	13.5	3,310	7,360	6,764
Del.	13.2	17.0	15.0	658	986	990
Md.	14.5	18.0	16.0	739	1,350	1,520
Va.	16.1	17.0	16.0	1,791	2,958	2,720
W. Va.	14.2	15.0	15.0	19	15	15
N. C.	13.4	16.5	15.0	3,434	4,785	3,885
S. C.	9.6	11.5	12.5	353	1,127	1,262
Ga.	8.8	10.5	11.0	130	336	396
Fla.	—	20.0	20.0	—	240	240
Ky.	16.6	15.5	18.0	1,690	1,767	1,962
Tenn.	16.7	20.0	20.0	1,904	3,620	3,580
Ala.	15.4	19.0	20.0	766	1,748	1,760
Miss.	15.2	13.5	13.0	2,986	6,142	4,615
Ark.	16.9	16.0	18.0	5,799	13,856	13,194
La.	14.0	14.5	16.0	464	594	624
Okla.	9.7	10.5	13.5	207	861	932
U. S.	19.7	20.7	20.6	219,596	291,682	295,018

U. S. Department of Agriculture crop reporting board for Aug. 1.

—s b d—

FINLAND BUYS FROM REDS

Finland's purchases direct from China under a recently signed bilateral trade agreement are to include some 22,000 short tons of soybeans for import in the current year, according to Foreign Agricultural Service. This is in addition to other oils.



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Victory Mills operate the largest vegetable oil extraction plant and the most modern malt plant in Canada. Victory Mills products are as follows:

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SOYBEAN FLOURS — BREWERS' DRIED YEAST
MALT SPROUTS — BREWERS' DRIED GRAINS
MALTING BARLEY BY-PRODUCTS
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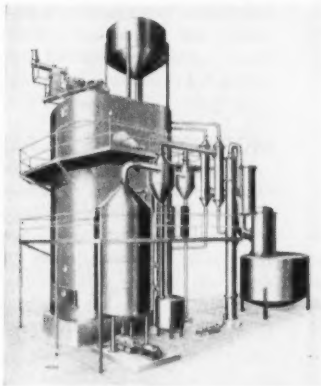
25 to 50 Ton Daily Capacity



WORLD'S LARGEST MANUFACTURER OF VEGETABLE OIL PROCESSING MACHINERY AND SOLVENT EXTRACTION PLANTS HAS A BACKGROUND OF EXPERIENCE COVERING MORE THAN HALF A CENTURY.

HERE'S WHY MORE AND MORE SOY BEAN PROCESSORS ARE SELECTING FRENCH SOLVENT EXTRACTION EQUIPMENT

- High quality products
  Golden dust-free meal
  Best quality oil
- Efficient operation
  Highest oil yields
  Lowest solvent loss
  Lowest maintenance
- Rugged equipment
  More capacity per day
  every day
- Safe operation
  An unique safety
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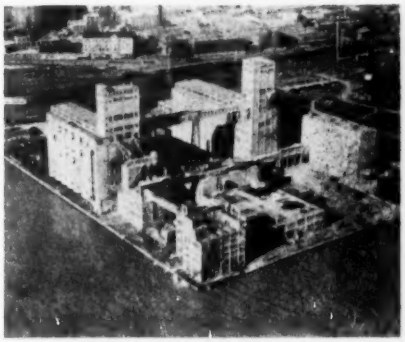
More than sixty percent of all tonnage of oil bearing seeds and nuts is processed by French extraction equipment. We build Hydraulic Presses, Mechanical Screw Presses and Solvent Extraction Plants. As builders of all types of equipment we can recommend without prejudice the most economical and satisfactory machinery for your needs.

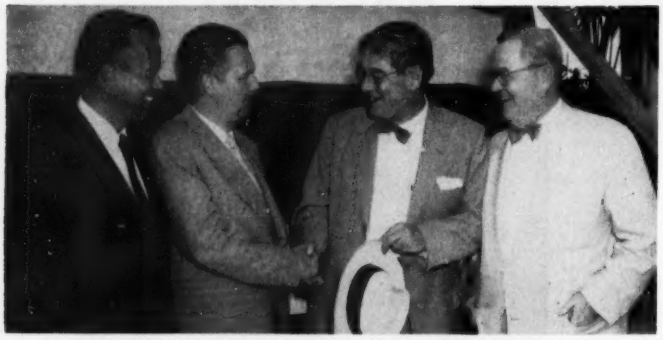


Plant View, Victory Mills, Limited,
Toronto, Canada

THE FRENCH OIL MILL MACHINERY CO., PIQUA, OHIO - U.S.A.

EXTRACTORS FOR EVERY OIL SEED—DIRECT EXTRACTION OR PREPRESSING

Open New Mrs. Tucker's Plant



MRS. TUCKER'S plant opening ceremonies, Jacksonville, Ill., Aug. 13. Left to right in photo: Attorney General John Ben Shepperd of Texas, Governor William G. Stratton of Illinois, President Lamar Fleming, Jr., of Anderson, Clayton & Co. of Houston, and W. S. Dorset, president of Mrs. Tucker's Foods, Jacksonville and Sherman, Tex.

A new multi-million dollar industry was added to the Midwest Aug. 13, when Gov. William Stratton of Illinois accepted the dedication of the new giant Mrs. Tucker's Foods plant at Jacksonville.

In ceremonies formally opening the installation, Lamar Fleming, Jr., president of Anderson, Clayton & Co., of which Mrs. Tucker's is a division, made the dedicatory address, which was then responded to by Gov. Stratton on behalf of the people of the state of Illinois. Greetings from Gov. Allan Shivers of Texas, the home of both Mrs. Tucker's Foods and Anderson, Clayton & Co., were then played from a recording and added to by John Ben Shepperd, attorney general of Texas, in person.

An estimated crowd of 14,000 were conducted on an inspection tour of the plant and served refreshments on the grounds, according to W. S. Dorset, president of Mrs. Tucker's Foods.

Capable of handling over 600 railroad tank cars of vegetable oil at a time, the new plant is one of the largest and most modern in the world. It includes a tremendous battery of storage tanks, a hydrogen plant, a refrigeration plant, a vegetable oil refinery, manufacturing plants for the processing and packaging of vegetable oil foods and cooking fats, warehouses, maintenance shops, office space, and a control laboratory. Three years were required for construction.

—s b d—

MORE COMBINES IN ARK.

Farmers in north Mississippi County, Ark., bought 67 additional self-propelled combines last year, says Keith J. Bilbrey, county agent at Blytheville. "I never saw any type of machinery in my life accepted as suddenly as the big self-propelled combines were," says Bilbrey.

ILLINOIS SOY PRODUCTS CO.

Processors of

CAPITOL BRAND

41% EXPELLER

SOYBEAN OIL MEAL

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PEASIZE CAKE

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National Soybean Processors Association
National Cottonseed Products Association
Memphis Merchants Exchange

Sees Big Gain in Mellorine in '53

In an initial survey of the domestic production of Mellorine-type frozen desserts made with fats and/or oils other than butterfat in combination with certain milk solids, the U. S. Bureau of Agricultural Economics reports that in 1952 the production of such products totaled 11,008,000 gallons.

This production was in the four states of Illinois, Missouri, Texas, and Oklahoma, in which the use of fats and/or oils other than butterfat in frozen desserts did not violate state regulations or statutes.

Toward the close of 1952 an interpretation of existing laws in a few other states permitted the production of frozen desserts made with substitute fats, but the volume produced in these other states during the remaining part of the year was not of any particular significance.

During early 1953, the legislatures of a number of widely scattered states authorized the production of Mellorine-type frozen desserts so that the output of such products for the year 1953 is likely to be much greater than in 1952.

The production of frozen desserts made with fats other than butterfat got its start in Texas in the last two or three years, but the volume did not amount to very much until the Texas State Department of Health by regulation authorized its production under the name of Mellorine. For the entire year of 1952, the Texas production of Mellorine totaled 6,319,000 gallons or approximately 57 percent of the total national production.

The term Mellorine is being used in a number of other states to designate a product similar to ice cream but made with animal and/or vegetable fats or oils instead of butterfat. However, the terminology for this new product is far from being uniform in all states, and much remains yet to be done in setting up standards and in the uniformity of terminology.

Illinois with 2,457,000 gallons ranked second in the production of Mellorine and similar products in 1952, and Missouri followed with 1,780,000 gallons. The fourth state, Oklahoma, covered by the survey had only 452,000 gallons for the year.

A significant measure of the expansion of the industry in 1952 is the fact that in January only 4,000 gallons were reported made in Illinois, whereas the December production totaled 235,000 gallons. Similarly, only 17,000 gallons were made in Missouri in January, but in December production totaled 107,000 gallons. The situation was a little bit more uniform in Texas, with the January production totaling 267,000 gallons and the December production totaling 294,000 gallons.

PRODUCTION OF MELLORINE IN 1952

	Ill.	Mo.	Okla.	Tex.	Total
	—Thousand Gallons—				
January	4	17	14	267	302
February	19	20	13	264	316
March	30	16	17	356	419
April	54	48	23	435	560
May	177	204	33	599	1,013
June	303	295	50	745	1,393
July	429	322	64	791	1,606
August	363	245	63	830	1,501
September	344	208	49	742	1,343
October	261	171	59	577	1,068
November	238	127	41	419	825
December	235	107	26	294	662
Total	2,457	1,780	452	6,319	11,008
Number of plants	100	68	14	135	317

$70,000,000

cash income yearly to soybean farmers from

MARGARINE

your fastest-growing soybean oil market - using 645,000,000 pounds in 1952.

NATIONAL ASSOCIATION of MARGARINE MANUFACTURERS

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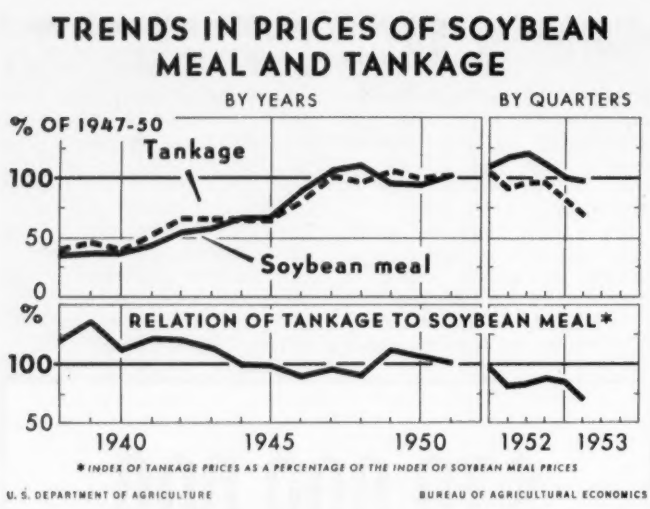

Soybean Meal Prices Gain on Tankage

PRICES of most high-protein feeds are considerably lower this year than last, but the greatest decline has been in prices of tankage, meat scraps and cottonseed meal, according to the U. S. Department of Agriculture.

The sharp decline in recent months brought prices of these feeds to a low level compared to soybean oil meal. During April-June the price of tankage and meat scraps at Chicago was about the same as soybean oil meal, though they usually command a substantial margin over soybean oil meal. (See above chart.)

Soybean oil meal prices have increased relatively more than tankage since before World War II. This has occurred in spite of the marked increase in soybean oil meal production.

One factor favoring soybean oil meal over some other protein feeds is the fact that it can be fed to any type of livestock. Tankage, for example, is principally a hog feed, and cottonseed meal is fed largely to cattle and sheep.

Furthermore, soybean oil meal has been improved by the addition of vitamin B-12 and antibiotics. These materials increase the value of soybean oil meal for hog and poultry feeding. And soybean oil also is an important carrier for them in livestock and poultry rations.

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JOINS ACOM FARMS

Edward Tillman, manager of Missouri Soybean Co., Caruthersville, Mo., has accepted a position as farm manager of the O. H. Acom Farms, Wardell, Mo., effective Aug. 1, O.H. Acom has announced.

TILLMAN

Crops produced on the Acom Farms, among the largest in Missouri, include cotton, soybeans and rice. Tillman will be in charge of harvesting and storage of crops.

Al Cravens, manager of the Missouri Soybean Co. plant at Haiti, Mo., will succeed Tillman as manager of that over-all operation.

The Board of Governors of

COMMODITY EXCHANGE, INC.
NEW YORK, N. Y.

announces that the Exchange will

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Wednesday, September 9, 1953
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(For further particulars, address
The Secretary, Commodity Exchange, Inc.
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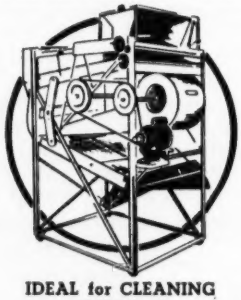
THE NEW HANCE "100"
All Metal
SEED and GRAIN CLEANER



IDEAL for CLEANING SOYBEANS

This machine, with rated capacity for beans of 100 bu./hr. when cleaning for seed, 200-250 bu./hr. for shipping or storage, is outstanding for its selective air separation.

For complete details write

J. W. HANCE MFG. CO.
WESTERVILLE, OHIO, U. S. A.

Buying ... or Selling?

It's hard to tell. He could be

1. **SELLING SOYBEANS**
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3. **OR BOTH**

THE AMERICAN FARMER depends on Purina to supply him with quality livestock and poultry Chows.

PURINA, likewise, looks to the American farmer for soybeans to make soybean meal, an important ingredient in practically all Purina Chows.

BOTH are sellers — both are buyers.

One of the farmer's best customers for soybeans and grains.

SOYBEAN PLANTS AT:
Bloomington, Illinois
Lafayette, Indiana
Kansas City, Missouri
Decatur, Illinois
Iowa Falls, Iowa
St. Louis, Missouri

RALSTON PURINA COMPANY

Look to

PRATER

for meal processing equipment

As the recognized leader in the design of meal processing systems, PRATER has the experience and manufacturing facilities for completely outfitting your plant with:

PRATER
DUAL SCREEN PULVERIZERS
Known thruout the industry as the perfect granular grinder, with greater capacity — lower operating cost.

PRATER
CAKE BREAKERS
For disintegrating press cake before adding moisture and final grinding.

PRATER
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For reducing press cake prior to entry into solvent systems.

PRATER
WATER BALL BREAKERS
For breaking up agglomerations of solvent extracted flakes after adding moisture.

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PERMANENT MAGNETS
For safeguarding fast moving machinery from the destructive effects of tramp iron.

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For sealing off the bottom discharge of dust collectors, bag filters, etc.

Whether you use mechanical screw presses, expellers, or the solvent extraction process, your best solution to meal processing problems is to get the advice and assistance of experienced PRATER Engineers.

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JOINS MEMPHIS FIRM

WILLIAM C. BAKER

William C. Baker, Jr., of 3062 Seminole Road, Memphis, has joined the Standard Commission Co., grain and ingredient brokers, with offices in the Cotton Exchange Building, Memphis.

Baker was employed by Chicago & Southern Airlines as flight control officer at Memphis, after which he spent some time in the wholesale appliance business, traveling in west Tennessee, eastern Mississippi and southwestern Kentucky. He spent one and one-half years in the U. S. Army, serving in Korea for about one year.

He joins the Standard Commission Co. with the purpose of making the grain and ingredients brokerage business his lifetime career.

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FEED OUTPUT DROPS

The national output of manufactured feed during the first six months of 1953 was 4 percent less than the all-time record established during the same period last year, according to statistical tabulations of the American Feed Manufacturers Association, Chicago, Ill.

"A smaller turkey crop, fewer spring pigs, and drought conditions in a wide area of the Southwest were factors contributing to the decline in manufactured feed use," W. E. Glennon, AFMA president, announced.

Total tonnage for the industry was placed at 17 million tons for the six-month period. This compares to 17.7 million tons for the same period a year ago, and 34.4 million tons for all of last year.

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SEES DAIRY CHANGES

Rapid gains in use of substitute fats and reduced milk fat in foods won't result in less demand for milk, but will bring further sharp changes in the way milk is used, according to R. W. Bartlett, University of Illinois agricultural economist.

Speaking at the Dairy Store Conference on the University campus, Bartlett estimated that use of milk for butter in the United States in 1960 would show a 38 percent decline from 1950.

Use of milk for ice cream is likely to be down 30 percent, and 16 percent less will be used for evaporated and condensed milk.

In contrast, Bartlett estimated that in 1960 we would be using 45 percent more milk for cheese than in 1950, 35 percent more as fluid milk and cream and more than twice as much in the form of dried whole milk.

While several factors are at work in this changing milk use picture, the trend to substitutes and less milk fat will show up as the major reason.

Hail Damaged Crop in Iowa

—Photo by the Soybean Digest

HAIL DAMAGED many Iowa fields during July. Here near West Bend, Iowa, hail almost completely stripped this soybean field of leaves, and the field has been replanted to soybeans between the rows. There is considerable bloom on the older plants, however. Many cornfields in the area had been plowed up and replanted to soybeans due to hail damage.

Have You Subscribed Yet?

AMERICAN SOYBEAN ASSOCIATION
Hudson, Iowa

Attached find my check for $7.50. Please send me LATE NEWS for one year (20 times outside the Soybean Digest). I am a member.

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To receive LATE NEWS 32 times during the coming year just clip and fill out the coupon and mail today with your check.

Mrs. Tucker's Vast New Plant in the Very Heart of the SOYBEAN COUNTRY

Mrs. Tucker is celebrating her 40th Anniversary with the opening of the new multi-million dollar plant shown above. It has one of the world's largest capacities for refining and processing soybean and other vegetable oils. Facilities include tank storage for 600 railroad tank cars at a time, a vegetable oil refinery, a hydrogen production plant, packing lines for production of consumer and institution shortenings, margarines, salad oil and extensive storage space. This new plant, located in the heart of the soybean country, enables Mrs. Tucker to serve her Midwest customers better than ever.

Mrs. Tucker's Foods, INC.

SHERMAN, TEXAS — JACKSONVILLE, ILLINOIS

Mrs. Tucker's Products—Great Users of SOYBEAN OIL

Nature locked the cupboard

...but ADM found the key

Nature was generous when she created the soybean.

In each tiny bean are precious ingredients ... raw materials for modern industry. The problem, then, is to unlock this rich supply ... to extract and separate, to purify and improve ... to get out everything which nature put in.

Take the meal, for example. It's naturally rich in protein, but without man's help, much of this protein remains "locked-up" in an undigestible form.

ARCHER-DANIELS-MIDLAND has developed a carefully controlled cooking process which releases the full growth promoting power. The result? 20% greater protein efficiency ... and extra gains worth as much as $91 more per ton than those produced by some soybean oil meals.

This is nothing new for ADM. For 25 years, it has been a leader in creating new and better uses for the soybeans you grow. Scores of products born in ADM laboratories and produced in ADM processing plants play vital roles in America's daily life.

This is the way your markets are built ... and this is how they will continue to grow.

Some ADM Products made from Soybeans

- ADM Soybean Brew Flakes
- Admex 710 (a plasticizer for vinyl resins)
- Archer "S" (Salad Oil)
- Archer 44% Soybean Oil Meal, Pea-Size, Pellets, Flakes
- Archer 50% Low Fibre Soybean Oil Meal
- Archer Booster Feeds
- R-Lecin (Soybean Lecithin)
- Bakers Nutrisoy
- Daniels' Supreme
- Kaysoy
- Nutriwhip
- Packers Granular
- Paint Vehicles
- Soya Fatty Acids
- Soy Flour

ARCHER QUALITY

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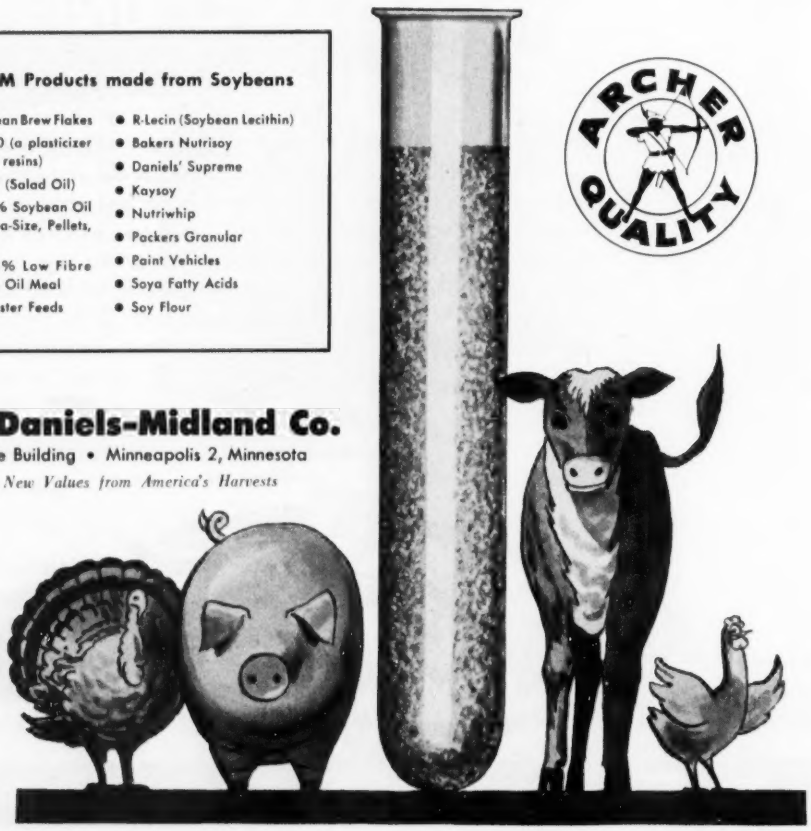
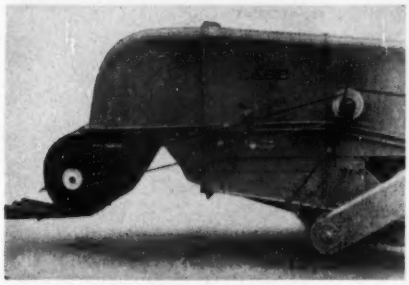
Creating New Values from America's Harvests



NEW PRODUCTS and SERVICES

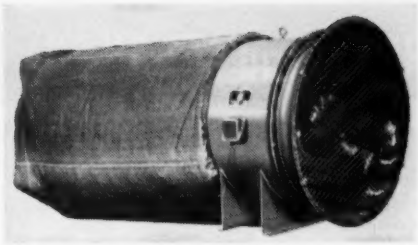


STRAW CHOPPER. The "Kut-Rite" straw chopper of New Ulm, Minn., was shown at the American Soybean Association convention in St. Louis. The chopper is designed to fit all makes of combines.

It features swinging hammers which cut all kinds of straw. It gives full width spread so that disking or plowing following the combine is a pleasure as compared to the troublesome plowing job of the past.

The machine has been thoroughly tested and has proved satisfactory with over 4,000 machines in the field. For further information write Soybean Digest 9a, Hudson, Iowa.

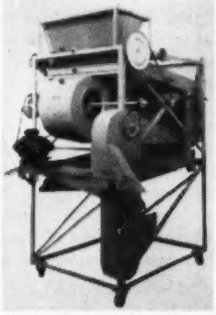
AIR DRIER. This one "Krop-Kare Aertemp" fan built for the J. R. Mayner Co. will do all jobs of natural air drying for both



forage and grain crops. It has adjustable pitch blades which can be selected and set to dry soybeans, hay, ear corn, wheat or other small grains—thus one fan does the work of two or more.

For further information write Soybean Digest 9c, Hudson, Iowa.

SEED CLEANER. Now in full production is the new Hance "100" seed and grain cleaner. The use of metal for all parts, substantial angle frame, sheet steel housing, and formed metal screen frames and shoes, and the application of special bronze bearings to withstand the shocks of screen eccentric reversals, gives this cleaner great accuracy and durability.



The new Hance "100" has a rated capacity of 100 to 150 bushels per hour when cleaning beans, seeds and grain for seed preparation, and will clean 200 to 250 bushels per hour for storage or shipping.

For further information write Soybean Digest 9b, Hudson, Iowa.

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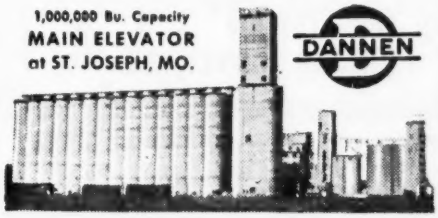

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GRITS and FLAKES... FROM THE WORLD OF SOY

◆ Ralph A. Wyckoff has been named sales manager of the Northwest Feeds, Inc., at Oswego, N. Y., a division of the Oswego Soy Products Corp., it is announced by Stewart D. Ormsby, president. Wyckoff has been associated with the Ohio Farmers Grain Corp., Fostoria, Ohio, as assistant general manager. He resigned this position May 1.

◆ Alabama Grain Elevator Co., Mobile, Ala., announces that all facilities of its grain export elevator are now in operation. The shipside facility has a storage capacity of 1,600,000 bushels and a ship-loading capacity of 50,000 bushels per hour.

◆ Herbert B. Larner has been elected president of the Chemurgic Process Corp., 112 14th Ave., College Point, N. Y. The firm has complete facilities to design, engineer, fabricate and erect a complete plant or processing equipment for the handling of fats and oils and other products. Larner did work in connection with developing commercial uses for the Solexol process.

◆ *The commanding general, Headquarters 5th Army, Chicago, has awarded the Swift & Co., Champaign, Ill., soybean mill a certificate of appreciation in recognition of cooperation in the releasing of employes for performance of military duty.*

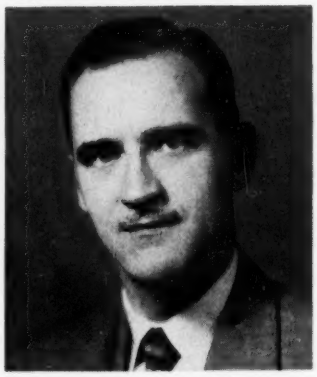
◆ C. Lyndon Bruno has been elected president of Spencer Kellogg & Sons, Inc., Buffalo, the fourth to hold this position since the firm was incorporated in 1912. He succeeds James L. Wickstead.

◆ Dr. A. W. Klemme, University of Missouri extension specialist, has requested a leave of absence for one year to initiate and direct a research foundation for the T. F. Murchison Co., San Antonio, Tex., to study the relationship between soil fertility and animal and human health. Klemme has been very active in the soybean program in Missouri.

◆ Dr. Malcolm M. Renfrew has been named director of chemical research and development at General Mills research laboratories at Minneapolis, Minn. He was formerly director of chemical research, now has over-all administrative responsibility for the chemical research, chemical engineering and chemical market development departments. New head of the chemical research department is Dr. Harold Wittcoff. Dr. Owen Moe heads the newly-created chemical market development department.

◆ *Sales personnel of the vegetable oil division of Cargill, Inc., Minneapolis, recently attended a four-day sales meeting in Minneapolis and at Lake Mille Lacs.*

HEADS SOYA COUNCIL



WILFRID B. COX

Wilfrid B. Cox of Archer-Daniels-Midland Co. of Minneapolis, Minn., was elected chairman of the Soya Food Research Council at its annual meeting in Washington. Cox succeeds Harry A. Olendorf of Spencer Kellogg & Sons, Inc., of Decatur, Ill. Olendorf was reelected treasurer.

Other officers elected were E. A. Buelens of the Glidden Co., Chicago, Ill., as chairman of production technology, Douglas Dies of Washington, D. C., as secretary, and Dr. Marvin W. Formo of Archer-Daniels-Midland Co. as chairman of research.

George M. Strayer was reelected to the Council as representative of the American Soybean Association, the growers' national association. Associate membership is being extended to certain foreign soybean organizations.

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OFFICES AND AGENTS IN PRINCIPAL WORLD PORTS

◆ *Chase Bag Co., Chicago, announced the appointment of William Hart Adler, Inc., Chicago, as advertising agency for the company effective Sept. 1.*

◆ Swift & Co. reopened its Champaign, Ill., soybean oil mill with improved processing facilities Aug. 1, N. P. Noble, manager, announced. Construction Management, Inc., Minneapolis, has installed two desolventizer-toasters and revamped heating and meal-cooling facilities.

◆ Dr. Elton L. Johnson, who has been on the staff of the poultry husbandry department at Iowa State College for several years, in charge of poultry nutrition work, will head the poultry department of the University of Minnesota.

◆ Spencer Kellogg & Sons, Inc., Buffalo, N. Y., announces the appointment of Norris L. Farrington as sales manager, industrial soybean and castor oils department. He graduated from the University of Maine in 1950 with a degree in business administration. He joined the company the same year in the edible oils section, and later was transferred to the industrial soybean and castor oil section. He will be assisted in his new duties by John L. Cowan.

◆ *Harrison B. Rue of the Chase Bag Co.'s Buffalo branch has been promoted to branch manager. He has been serving as acting manager.*

◆ Kenneth N. Wright's appointment as manager of special feed products sales within the company's meal sales department is announced by the A. E. Staley Manufacturing Co., Decatur, Ill. He has been a member of the firm's research staff since 1946. He has done extensive research work on heat treatment of soybean oil meal.

◆ Clive Marshall, who recently resigned as president of Honeymead Products Co., Mankato, Minn., joined the Sewrey-Gartside Co., 208 S. La Salle St., Chicago, Ill., as a broker of vegetable oils and associated products Sept. 1, the firm has announced.

JOINS FOOD FIRM

EDWARD M. MULDOON

Relinquishing administrative responsibilities because of illness, French Jenkins has announced the appointment of Edward M. Muldoon as general manager of the LaChoy Food Products division of Beatrice Foods Co., Archbold, Ohio, effective July 1.

Mr. Muldoon has been affiliated with A. & P. Tea Co., with Lang & Co., Seattle, Reid-Murdoch, Inc., Chicago, and more recently as vice president of two subsidiaries of the Pennsylvania Refining Co..

HAYNES

Soy Products Inc.

PORTLAND, INDIANA

Two Quality Products:

Haynes 41% Expeller Soybean Meal

Haynes Crude Soybean oil

We Are Buyers of Soybeans

That's right, Mr. Grain Man. Only AEROGLIDE driers have the remarkable CLIMATE COMPENSATOR

You can stop worrying about those climatic changes, Mr. Grain Man. Aeroglide's exclusive, new Climate Compensator makes sure that your grain gets maximum drying results regardless of outside temperature variation. Another step by Aeroglide to give you the best product in the field!

And Aeroglide offers you other mechanical improvements in the new, 1953 model. For instance, there's

★ Power Discharge
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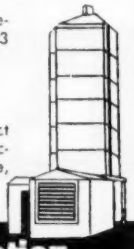
And simplified controls, a more compact wiring arrangement and improved erection procedures. Write, wire or phone, but act today!



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WASHINGTON DIGEST

By WAYNE DARROW
Washington Correspondent for
The Soybean Digest

SUPPLIES. A fairly stable supply and demand situation for edible fats and oils is foreseen by government officials for the 1953-54 year on the basis of preliminary study.

Total supplies will be somewhat larger than for the season now ending. Large carryover stocks will more than offset somewhat lower production. Most of the reduced output will be in animal fats, chiefly lard.

Total stocks Sept. 30 are roughly estimated at 1.1 to 1.2 billion pounds of edible fats and oils except butter. Most of this (about 900 million pounds) will be owned by Commodity Credit Corp. in the form of cottonseed oil.

Total disappearance during 1953-54 is expected to slightly exceed that for the year ending Sept. 30, which will amount to about 6.2 to 6.3 billion pounds domestic and about 1 billion pounds into export. Total stocks Sept. 30, 1954, may be a little higher than at the end of this season, but not significantly so.

PRICES. No great price swings are expected the coming year. The outlook is for more of the same, chief exception being a probable narrowing of the spread between soybean and cottonseed oils. If export demand is as strong as expected, some think bean oil prices will advance 1 to 2 cents a pound. This would help bean prices which seem sure to stay below support level for some time.

Commodity Credit Corp. is expected to lower its sale price of cottonseed oil 1 to 1½ cents a pound to put it more nearly in line with its new "package price support" for the 1953 cottonseed crop. A cut in its oil sale price of 3 cents a pound would be required to put it fully in line with the new oil support price, but officials regard this reduction as too drastic.

OIL MEAL. Total oil meal supply will probably be about 2 percent larger the coming season than for the one soon ending. Oil meal consuming animal units will be about 1 percent less. No great changes in bean meal prices are expected. Relatively low priced corn will tend to check rises in meal prices.

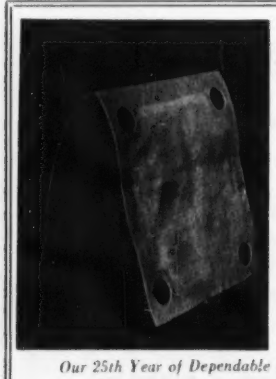
Soybean meal prices are unusually low in relation to corn prices. On basis of U. S. average farm corn prices and bulk meal, Decatur, meal prices are about 44 percent higher than corn. A year ago meal was 56 percent higher, and during 1946-50 meal prices averaged 68 percent higher than corn.

The carryover of all five oil meals Sept. 30 is estimated at about 250,000 tons compared to 158,000 tons a year ago. Total 1953-54 production and net imports are expected to add another 100,000 tons or thereabouts to the total of last season's supply available for livestock feeding.

Imports of meal for the year ending Sept. 30 will total 350,000 to 400,000 tons. Exports, mostly cottonseed meal and cake, will be about 100,000 tons. Thus the U. S. supply has been increased by about 250,000 tons this season. With oil meal prices lower this season, imports are likely to be less. It's possible the net trade balance between imports and exports will be equal.

Cottonseed meal, pellets and cake in the drouth relief program through Aug. 21 amounted to 312,917 tons as approved by county USDA drouth committees, of which 152,340 tons had been shipped. Drouth relief funds are running out, and the number of drouth counties is being reduced, so it's a question what the final total will be. As of now, however, approved applications amount to about 15 percent of the entire 1952-53 cottonseed meal supply.

1954 ACREAGE. Bean acreage in 1954 will probably increase about 2 million acres—from 14.3 million acres to more than 16 million—because of wheat and cotton marketing quotas and corn acreage allotments.



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Cornbelt farmers are expected to divert surplus corn and wheat acres chiefly to beans, oats, barley, flax and pastures. The best "out" for Southern farmers—especially those in the Mississippi Delta—is to shift from cotton to beans, with further increases in pasture acreages.

Compliance with wheat and cotton acreage allotments will probably be very great because of the severe penalties for production in excess of marketing quotas.

The 1950 experience on corn acreage allotments indicates that Cornbelt farmers will go about half-way on compliance.

In the Midwest soybean belt where both corn and wheat are grown, an estimated 5 to 5.5-million-acre reduction in corn is expected next year and a cut of 2 to 2.5 million acres in wheat. Total 1953 soybean acreage in this combined corn-wheat area is about 12 million. Thus the corn and wheat acreage reductions of 8 million will be about two-thirds of the total 1953 bean acreage. At least 1 to 2 million acres of this is likely to go into beans.

In the Southern soybean belt where cotton is also grown, cuts in 1954 cotton acreage are estimated at about 2.4 million acres. Total 1953 bean acreage in this same area is 1.8 million. At least one-half million out of the 2.4 million diverted cotton acres are likely to go into beans next year.

If these production shifts materialize, the 1954 bean crop may rise to 335 million bushels provided growing conditions are equal to this season.

STORAGE. The Administration is offering the greatest incentives ever made to private trade, co-ops and farmers to build permanent storage facilities for grains and oilseeds.

Congress approved five-year tax amortization on 100 percent of the cost of construction and equipment for all permanent-type storage completed between Dec. 31, 1952, and Dec. 31, 1956.

No red tape is involved. No applications have to be made or officials visited. Deduction at the rate of 20 percent a year may be taken on regular income tax return, though claims should be backed up by a statement showing that the construction is bonafide permanent type storage.

USDA is offering three plans of guaranteed occupancy for newly built storage facilities of approved types and locations. Plan No. 1 guarantees occupancy with CCC grains and oilseeds of not to exceed 75 percent of capacity for three years and 40 percent for the next two years.

Plan No. 2 guarantees 60 percent occupancy for five years. Plan No. 3 offers 50 percent occupancy for six years.

Rates paid for all grains and oilseeds are the same as for wheat under CCC's Uniform Grain Storage Agreement.

To be eligible for the offer, country elevators must be located in areas of heavy production and on railroads. Terminal and sub-terminal facilities must be located in or near areas of heavy production, and on railroads (if possible near navigable water) in line of natural freight movement.

Applications for country elevators should be filed with county PMA committees; for other facilities with state PMA committees.

Market Street

We invite the readers of THE SOYBEAN DIGEST to use "MARKET STREET" for their classified advertising. If you have processing machinery, laboratory equipment, soybean seed, or other items of interest to the industry, advertise them here.

Rate 10c per word per issue.
Minimum insertion $1.00.

FOR SALE—ALL MODELS ANDERSON expellers, French screw presses, flaking and cracking rolls, stack cookers, desolventizers, filter presses, Anderson rotary tube dryers, meal coolers. Pittock & Associates, Glen Riddle, Pa.

FOR SALE—15 ANDERSON EXPELLers; 11 Duo's, 4 Super Duo's; 10 Shriver and Sperry Filter Presses 42 inches x 42 inches to 12 inches x 12 inches; 3 Louisville Steam Tube Dryers; 6 Ro-Ball and Rotex Screens. Consolidated Products Co., Inc., 16 Park Row, New York 38, N. Y.

FOR SALE—ONE SET OF NEWLY RE-cut rolls for Allis-Chalmers 10 by 42, two pair high soybean cracking roll. Swift & Co. Soybean Mill, Champaign, Ill.

FOR SALE—ONE STEINLITE MOISture Tester, 110 volts, 60 cycle, model 444-2D, 3 years old, price $250. One Grain Trier, 63-inch Trier, double tube brass, 1.38-inch outside diameter, 11-inch openings. One No. 99 Seedburo Gram Scale, One Steel Grain Body: 18 feet long, 5½ feet high, 6 feet wide, all steel, can be used for hauling grain or sacked material, original cost $1800, owner states in A-1 condition, $600 net to you FOB Iowa, 3 years old. Two Anderson Rotary Steam Soybean Dryers, each unit fitted with 5 hp, 127 rpm, 440 volt, 60 cycle, used short time. E. E. Frith Co., Box 146, Dubuque, Iowa.

FOR SALE — CATERPILLAR DIESEL generator set, D-17000-ss0/440 volts-rating 120 KVA-96 KW-900 RPM 60 cycle; 1 Anderson super duo Expeller; 1 Anderson rotary steam drier; 1 Sperry filter press. Bader Soy Products Co., Inc., Vermont, Ill.

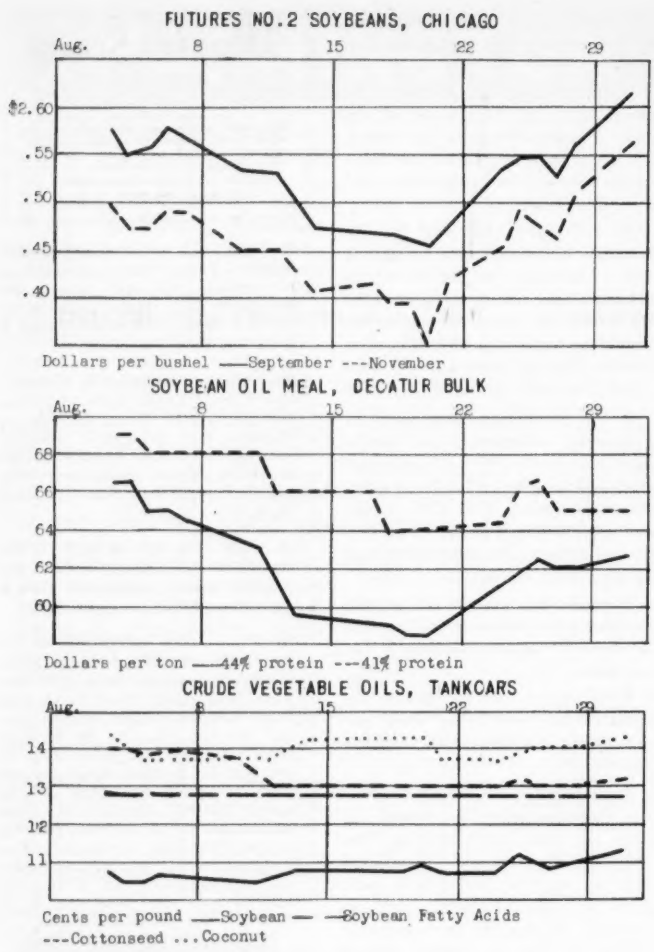
L. B. Lovitt & Co.

FUTURES AND CASH

SOYBEANS, SOYBEAN MEAL & COTTONSEED MEAL

Cotton Exchange Bldg.
Memphis, Tennessee

L.D. 562, 396 & 207 **Twx: ME 363**



August Markets

BEANS and meal both turned sharply upward the last week in August after beans had hit new lows for the season earlier in the month.

The reason for the stronger bean market appeared to be mainly the deepening drought in the central soybean belt that led to a growing feeling that the crop will be cut.

Also some processors shut down for a clean up or curtailed operations when they got to the bottom of the barrel on old crop beans.

There was a belief that a considerable bushelage of beans still remained in the country, but farmers weren't parting with many.

Stored stocks of soybean meal were reduced sharply in August and the cutback of processor output indicated the possibility of a tight supply of meal until the arrival of new crop soybeans. But in general the demand for meal was not brisk and there was a generally poor demand for mixed feeds.

Other bearish influences were the July soybean processing report that showed 1 million less bushels processed than expected, the August break in the grain market, and the nearness of the new bean crop.

The easiness in meal and the strength in lard tended to keep soybean oil prices on an even keel, and there was little change.

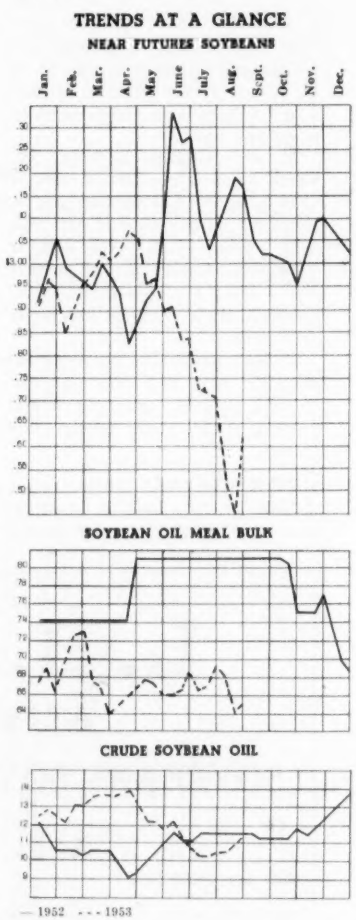
PROCESSING. Crushings of soybeans in July totaled 16.3 million bushels compared with 17.3 million in June and 17.5 million in July 1952.

Processing of soybeans, October through July, totaled 200.1 million bushels this season as against 211.9 million the same months last season.

EXPORTS. Exports of soybeans continued heavy and totaled 2 million bushels in July. This brought the total since Oct. 1 to 29.3 million, an increase of 14.1 million over the same period last year, states PMA.

SOAPSTOCKS. Acid soybean soapstocks, delivered Midwest, declined from 4¾ to 4½ cents per pound during August. Raw soybean soapstocks declined from 2 to 1 87/100 cents a pound.

TRENDS AT A GLANCE



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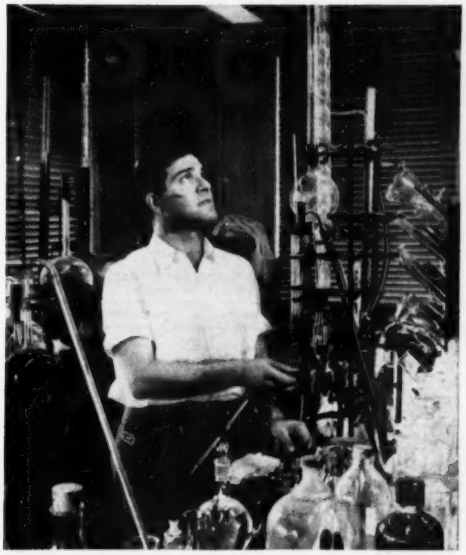

Startling Development by STALEY'S Sets New Frontiers in Nutrition . . .

Through Staley's never-ending research, STAMINO-44 becomes another ingredient "first" that means more profit and a better than ever product for feed manufacturers. Now, for the first time you can buy a new soybean oil meal ingredient that successfully combines the high protein quality of 44% soybean oil meal with the high fat content of 41% soybean oil meal.

So, wait no more. Find out about all the extra money-saving, money-making advantages of STAMINO-44. Write, wire or phone today.

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Never Before a Protein Source Like This! STAMINO-44 PAYS OFF For FEED MANUFACTURERS FOUR BIG WAYS

1 DUST PROBLEMS VANISH
STAMINO-44 is dust-free . . . makes your feeds dust-free, too. Costly shrinkage is eliminated. You save up to 300 pounds of protein concentrate in a car load.

2 EXTRA FAT KEEPS FEED FRESH
STAMINO-44 is guaranteed to contain 4.5% high grade fat. This extra fat is stabilized to prevent rancidity . . . keep feed fresh far longer . . . increase vitamin life.

3 GOOD FORMULAS PACK NEW PUNCH
The extra fat increases feed efficiency . . . has 2.25 times more energy than carbohydrates . . . makes feed appear "bright" and "alive" . . . gives you the same fine results for hog, beef, dairy, and poultry feeds.

4 FEED PELLETS FASTER
You produce more pellets per hour . . . efficiency of pellet units is improved . . . manufacturing costs are reduced . . . you pocket the savings.

ALL THIS—PLUS HYDROLYZED CORN PROTEIN—AN EXTRA FORTIFIER THAT *ONLY* STALEY'S CAN MAKE!

Even these advantages were not enough for Staley's scientists. They have also included Hydrolyzed Corn Protein in STAMINO-44. Created by an exclusive Staley's process, it improves flavor, palatability and aroma of feeds . . . provides an effective level of essential amino acids.

It will pay you to investigate STAMINO-44 right now for improving the quality of your feed formulas and for improving manufacturing operations.

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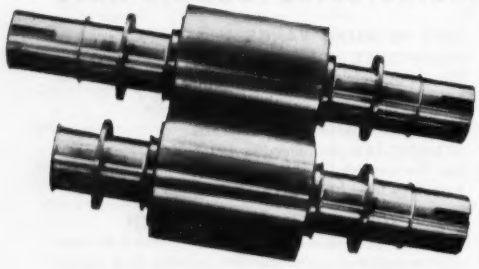
CONTINENTAL
Milling and Oil Extraction
ROLLS



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Continental Rolls are made of special alloy chilled iron compositions—developed to provide extreme hardness and wear resistance. Both Cromonite and Crasfloy Rolls serve from 2 to 4 times as long as plain carbon chilled iron rolls before redressing is required. Service life usually is at least doubled.

Crasfloy Rolls

. . . recommended for all services where surface spalling has been a problem with ordinary rolls.

Cromonite Rolls

. . . for service where spalling has not been a troublesome factor but where increased wear resistance is desirable.

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IN THE MARKETS

● **FACTORY USE VEGETABLE OILS** for May and June, as reported by Bureau of the Census.

PRIMARY MATERIALS: FACTORY PRODUCTION AND CONSUMPTION, AND FACTORY AND WAREHOUSE STOCKS, JUNE 1953-MAY 1953 (1,000 pounds)

	Factory production		Factory consumption		Factory and warehouse stocks	
	June 1953	May 1953	June 1953	May 1953	June 30 1953	May 31 1953
Cottonseed, crude	74,529	95,387	103,821	129,004	56,418	84,671
Cottonseed, refined	96,142	119,424	75,610	79,258	(1)935,273	916,453
Peanut, crude (2)	4,654	4,149	4,149	4,242	2,114	1,677
Peanut refined	3,852	3,932	2,501	2,827	2,773	2,751
Corn, crude	21,894	22,884	25,264	23,476	13,626	15,216
Corn, refined	23,415	21,721	20,409	19,985	5,076	4,526
Soybean, crude	190,086	226,293	201,087	191,050	166,767	190,873
Soybean, refined	185,566	175,291	166,319	162,942	106,456	100,864
Coconut, crude	37,590	32,318	45,273	43,527	*41,113	*38,685
Coconut, refined	29,970	26,959	27,053	23,063	7,723	8,759
Linseed, raw	31,975	24,497	41,131	42,697	588,812	599,768
Linseed, refined	16,990	18,911	21,436	21,544	30,140	31,801
Vegetable foots (100% basis)	18,630	19,382	14,326	15,403	53,388	54,518

(1) Data regarding the amount of refined cottonseed oil owned by the Commodity Credit Corporation on June 30 are not available. (2) Data on production, and stocks held at crude oil mill locations, collected by Bureau of Agricultural Economics, U. S. Department of Agriculture. * Data for crude coconut oil are on a commercial stocks basis and do not include figures for stock piles of strategic oils.

FACTORY CONSUMPTION OF VEGETABLE OILS, BY USES, DURING JUNE 1953 (1,000 pounds)

	—Edible products—				—Inedible products—			
	Shortening	Margarine	Other edible	Soap	Chemicals	Paint and varnish	Lubricants and greases	Other inedible products
Cottonseed, refined	10,014	3,214	1,057	...	196	6	...	45
Soybean, crude	...	...	...	65	...	712	...	1,340
Soybean, refined	33,214	5,080	7,587	33	...	5,944	22	5,926
Vegetable foots	...	...	...	3,060	...	65	...	218
Hydrogenated cottonseed oil, edible	9,183	16,530	1,421	...	...	...	...	1
Hydrogenated soybean oil, edible	24,248	54,666	898	...	...	...	...	...
Hydrogenated vegetable oil, other, edible	1,591	1,183	(1)	...	...	...	...	...
Fatty acid stock	...	...	...	520	12	63	38	365

(1) Not shown to avoid disclosure of figures for individual companies.

● **INSPECTIONS.** Soybeans, inspected receipts by grades and percent, as reported by Production and Marketing Administration.(1)

Grade	Oct.-June 1951-52		Oct.-June 1952-53		June 1952		May 1953		June 1953 (2)	
	1000 bu.	%	1000 bu.	%	1000 bu.	%	1000 bu.	%	1,000 bu.	%
No. 1	45,539	25	29,541	17	6,244	39	1,271	14	1,310	14
No. 2	78,987	44	82,522	46	7,262	45	4,417	50	4,887	52
No. 3	35,416	20	30,912	17	1,543	10	1,395	16	1,277	14
No. 4	13,201	7	23,230	13	615	4	1,067	12	1,037	11
Sample	6,749	4	12,776	7	389	2	659	8	902	9
Total	179,892	100	178,981	100	16,053	100	8,809	100	9,413	100

(1) Carlot receipts have been converted to bushels on the basis that 1 carlot equals 1,650 bushels. (2) Of the June 1953 receipts, 3,535 bushels were Black, 3,000 Mixed, and the remainder Yellow soybeans. Inspections of soybeans in June included 438,000 bushels as cargo lots, 141-384 bushels as truck receipts, and the balance as carlot receipts. Based on reports of inspections by licensed grain inspectors at all markets.

● **MARGARINE PRODUCTION.** Reported by Bureau of the Census from reports of all known manufacturers producing margarine.

PRODUCTION OF MARGARINE: CUMULATIVE MONTHLY AND ANNUAL TOTALS (1,000 pounds)

	Total	Uncolored	Colored
1953—6 months (January-June)	640,496	35,564	604,932
1952—6 months (January-June)	*651,868	*82,232	*569,636
1952 annual production	1,285,975	129,726	1,156,249
1951 annual production	1,040,718	211,662	829,056
1950 annual production	937,045	437,402	499,643

* Revised. Data through June 1950 are from Bureau of Internal Revenue. Prepared by Bureau of the Census, Industry Division, Chemicals Section.

● **SUPPLY AND DISTRIBUTION** of the 1950-1952 soybean crops, reported by Production and Marketing Administration. (1,000 bu.)

SUPPLY

Year and quarter	Stocks at beginning of period (1) — Farms	Interior mills & elevators	Crushing plants	Terminal markets	CCC (2)	Total stocks	Production	Total supply
1950-51:								
Oct.-Dec.	1,241	244	502	920	—	2,907	299,279	302,186
Jan.-Mar.	101,728	38,945	77,163	13,915	—	231,751		231,751
Apr.-June	48,085	19,594	63,137	12,513	—	143,329		143,329
July-Sept.	9,996	4,362	33,584	4,201	—	52,143		52,143
Total						2,907	299,279	302,186
1951-52:								
Oct.-Dec.	2,675	262	552	670	—	4,159	282,477	286,636
Jan.-Mar.	104,167	44,399	61,852	9,760	—	220,178		220,178
Apr.-June	60,095	21,858	42,708	5,457	—	130,118		130,118
July-Sept.	5,864	4,640	30,838	3,809	—	45,151		45,151
Total						4,159	282,477	286,636
1952-53:								
Oct.-Dec.	1,958	296	611	710	—	3,575	291,682	295,257
Jan.-Mar.	81,731	48,369	79,852	13,394	1,037	224,383		224,383
Apr.-June	58,316	27,926	49,613	9,048	815	145,718		145,718
July-Sept.	19,877	11,399	26,905	3,245	356	61,782		61,782

DISTRIBUTION

Quarter or period	Used for seed	Net exports (3)	Crushed at mills	Feed & residual (4)	Total disappearance
1950-51:					
Oct.-Dec.	—	10,501	67,056	7,122	70,435
Jan.-Mar.	—	6,110	72,352	9,960	88,422
Apr.-June	18,225	9,555	61,165	2,241	91,186
July-Sept.	—	1,660	51,417	5,093	47,984
Total	18,225	27,826	251,990	14	298,027
1951-52:					
Oct.-Dec.	—	7,281	67,851	8,674	66,458
Jan.-Mar.	—	4,256	68,043	17,761	90,060
Apr.-June	19,539	2,811	58,429	4,188	84,967
July-Sept.	—	2,697	50,057	11,178	41,576
Total	19,539	17,045	244,380	2,097	283,061
1952-53:					
Oct.-Dec.	—	13,590	65,901	8,617	70,874
Jan.-Mar.	—	7,406	60,666	10,593	78,665
Apr.-June	19,840	(5)6,022	57,164	910	83,936

(1) October 1 stocks in all positions include only old crop soybeans. (2) Owned by Commodity Credit Corporation in transit to ports. (3) Imports negligible. (4) Mostly quantity fed, but includes waste, loss, and statistical errors in estimates. (5) Partly estimated. Stocks, production and quantity used for seed estimated by Crop Reporting Board; exports and quantity crushed from Bureau of the Census.

● **FUTURES TRADING** and open contracts in soybean oil meal on Memphis Merchants Exchange Clearing Association, in tons bulk.

	Volume of Trading	Open Contracts		Volume of Trading	Open Contracts
July 27	5,500	84,900	Aug. 12	3,200	67,800
July 28	3,500	83,400	Aug. 13	4,400	68,200
July 29	2,300	82,500	Aug. 14	4,300	67,100
July 30	2,300	82,400	Aug. 17	1,900	66,900
July 31	3,600	80,800	Aug. 18	3,700	68,600
Aug. 3	2,800	80,100	Aug. 19	6,200	67,500
Aug. 4	4,800	76,600	Aug. 20	13,700	61,800
Aug. 5	3,300	76,400	Aug. 21	4,300	63,400
Aug. 6	10,200	73,300	Aug. 24	2,100	62,500
Aug. 7	1,000	72,600	Total for 21 days reported	95,800	
Aug. 10	5,000	72,200			
Aug. 11	7,700	69,600			

● **STOCKS.** Production and Marketing Administration's commercial grain stock report. (1,000 bu.)

	Aug. 3	Aug. 10	Aug. 17
U. S. Soybeans in Store and Afloat at Domestic Markets			
Atlantic Coast	113	113	114
Gulf Coast	719	773	694
Northwestern and Upper Lake	0	6	0
Lower Lake	903	913	563
East Central	117	49	57
West Central, Southwestern and Western	887	740	739
Total current week	2,739	2,588	2,167
Total year ago	2,652	2,285	2,398
U. S. Soybeans in Store and Afloat at Canadian Markets			
Total current week	0	104	75
Total year ago	0	0	0
Total North American Commercial Soybean Stocks			
Current week	2,739	2,692	2,242
Year ago	2,652	2,285	2,398

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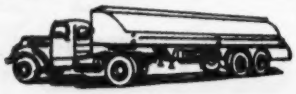
Ship By 

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● PROCESSING OPERATIONS. Reported by Bureau of Census for June and July.

PRIMARY PRODUCTS EXCEPT CRUDE OIL, AT CRUDE OIL MILL LOCATIONS: PRODUCTION, SHIPMENTS AND TRANSFERS AND STOCKS, JULY 1953-JUNE 1953

Products	Production		Shipments and transfers		End of month stocks	
	July 1953	June 1953	July 1953	June 1953	July 31, 1953	June 30, 1953
Soybean cake and meal*	387,583	404,204	437,910	408,325	118,388	168,715
Lecithin†	1,833	2,040	2,236	2,658	1,620	2,023
Edible soy flour, full fat*	504	544	638	473	213	347
Edible soy flour, other*	3,377	4,682	3,834	4,535	834	1,291
Industrial soy flour*	2,175	3,302	2,052	3,068	1,445	1,322

* Measured in tons. †Measured in units of 1,000 lbs.

SOYBEANS: RECEIPTS, CRUSHINGS AND STOCKS AT OIL MILLS, BY STATES, JULY 1953-JUNE 1953 (Tons of 2,000 pounds)

State	Receipts at mills		Crushed or used		Stocks at mills	
	July 1953	June 1953	July 1953	June 1953	July 31, 1953	June 30, 1953
U. S.	248,946	294,501	490,144	518,739	565,953	807,151
Arkansas	(1)	(1)	(1)	(1)	18,960	27,073
Illinois	56,726	100,711	179,480	197,200	230,273	353,027
Indiana	43,367	58,190	65,830	55,116	21,430	43,893
Iowa	68,396	63,506	86,060	94,770	97,781	115,445
Kansas	(1)	9,583	9,289	9,550	(1)	8,982
Kentucky	4,023	(1)	12,174	(1)	11,761	19,912
Minnesota	27,791	28,209	31,523	30,191	14,772	18,504
Mississippi	(1)	(1)	(1)	(1)	1,802	11,340
Missouri	(1)	11,117	19,530	14,266	(1)	25,670
Nebraska	(1)	(1)	5,083	5,034	6,832	(1)
North Carolina	94	(1)	1,988	5,786	6,906	8,800
Ohio	42,374	37,262	62,903	63,775	100,347	120,876
Oklahoma	(1)	----	----	----	(1)	----
Texas	----	(1)	----	(1)	----	----
All other	6,175	(2)	16,284	43,051	55,089	53,629

(1) Included in "All other" to avoid disclosure of figures for individual companies. (2) Receipts exceeded by reshipments of beans previously received and held in the State. U. S. receipts are on net basis, excluding transfers between mills.

SOYBEAN PRODUCTS: PRODUCTION AND STOCKS AT OIL MILL LOCATIONS, BY STATES, JULY 1953-JUNE 1953

State	Crude oil (thousand pounds) Production		Crude oil (thousand pounds) Stocks		Cake and meal (tons) Production		Cake and meal (tons) Stocks	
	July 1953	June 1953	July 31 1953	June 30 1953	July 1953	June 1953	July 31 1953	June 30 1953
U. S.	179,492	190,096	65,709	68,758	387,583	404,204	118,388	168,715
Ark.	(1)	(1)	239	(1)	(1)	(1)	3,363	5,657
Ill.	67,331	74,817	20,951	23,046	135,817	145,508	57,678	76,926
Ind.	24,507	20,329	11,980	9,532	53,187	43,281	19,508	(1)
Iowa	30,905	34,155	13,256	15,008	69,857	77,270	5,772	9,072
Kans.	3,471	3,475	1,041	1,310	7,668	7,964	435	448
Ky.	4,574	(1)	685	456	9,539	(1)	(1)	350
Minn.	10,697	10,375	4,199	3,131	25,938	23,672	1,177	1,145
Miss.	(1)	(1)	(1)	(1)	(1)	(1)	3,050	3,091
Mo.	7,207	5,155	1,751	2,067	16,011	11,554	1,542	885
Neb.	1,636	1,592	788	726	4,334	4,251	(1)	(1)
N. C.	579	1,703	1,257	739	1,580	4,697	12,296	14,398
Ohio	23,089	23,150	6,176	6,938	50,757	50,725	2,718	4,293
Okla.	----	----	----	----	----	----	1,125	2,875
Texas	----	(1)	----	----	----	(1)	496	(1)
All other	5,496	15,345	3,386	5,805	12,895	35,282	9,228	49,575

(1) Included in "All other" to avoid disclosure of figures for individual companies.

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